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Table 1 ; Comparison between detailed classification of Genus Gymnocalycium by AGG  
and other rough classifications (About Gymnocalcia, Reducta, Hyptiacantha Group(Aggregat) )

| Classification of Genus Gymnocalycium by AGG and others          | Habitat                                                              | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Synonym of rough classification by Mr. Graham Chares     | Rough classification and Synonym by Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-a (H.Till) Series Gymnocalycium-Aggregat Gymnocalcia           |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Subgenus Gymnocalycium                                   | G. gibbosum (Haworth) Pfeiffer ex Mittler [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| G. chubutense (Spegazzini) Spegazzini                            | Chubut-Argentina                                                     | G. gibbosum ssp. chubutense (Spegazzini) Papsch<br>G. chubutense (Spegazzini) Spegazzini<br>G. leonense nom. nud (Echinocactus leonensisCels)                                                                                                                                                                                                                                                                                                                                           | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   | Synonym<br>G. gibbosum f. ferox(Labouret) Slaba nom. inval. [H]<br>G. gibbosum v. ferox(Labouret) Y.Ita nom. inval. [H], [K]<br>G. gibbosum v. brachypetalum(Spegazzini) Papsch [H], [A]<br>G. gibbosum v. celsianum(Labouret) Y.Ita nom. inval. [K]<br>G. gibbosum v. fenellii(Haage ex Quehl) Y.Ita nom. inval. [K]<br>G. chubutense (Spegazzini) Spegazzini[A], [K]<br>G. gibbosum ssp. ferox(Labouret ex Rümpler) Papsch [H], [A], [K]<br>G. reductum(Link) Pfeiffer ex Mittler [A]<br>G. gibbosum v. gerardiiY.Ita nom. inval. [A]<br>G. borthiiKoop ex H.Till [K]<br>G. striglianumJeggle ex H.Till [K]<br>G. deeszianumDölz [K]                                                                                                                                                                                                                                                  |
| G. chubutense v. dubniorum (Halda & Milt) H.Till                 | Chubut-Argentina                                                     | G.dubniorum Halda & Milt                                                                                                                                                                                                                                                                                                                                                                                                                                                                | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum (Haworth) Pfeiffer ex Mittler                        | Buenos Aires-Argentina<br>Rio Negro-Argentina<br>La Pampa- Argentina | Cactus gibbosus Haworth<br>Cereus gibbosus(Haworth) Pfeiffer                                                                                                                                                                                                                                                                                                                                                                                                                            | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum f. cerebriformis(Spegazzini) Papsch                  | Buenos Aires-Argentina<br>Rio Negro-Argentina                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum v. brachypetalum (Spegazzini) Papsch                 | Rio Negro-Argentina<br>Mendoza-Argentina<br>La Pampa- Argentina      | G. gibbosum v. nigrumBackeberg nom. illeg.<br>G. brachypetalumSpegazzinii                                                                                                                                                                                                                                                                                                                                                                                                               | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum ssp. ferox (Labouret ex Rümpler) Papsch              | Chubut-Argentina                                                     | G. gibbosum v. ferox(Labouret) Y.Ita nom. inval.<br>G. gibbosum f. ferox(Labouret) Slaba nom. inval.                                                                                                                                                                                                                                                                                                                                                                                    | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum ssp. radekii Halda & Milt                            | Rio Negro-Argentina                                                  | G. gibbosum v. brachypetalum (Spegazzini) Papsch<br>G. gibbosum v. radekii nom.nud.                                                                                                                                                                                                                                                                                                                                                                                                     | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum ssp. radovani Halda & Milt                           | Rio Negro-Argentina                                                  | G. gibbosum v. radovani nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                                       | G. gibbosum ssp. gibbosum(Haworth) Pfeiffer ex Mittler   | G. gibbosum ssp. borthii (Koop ex H.Till) Chares [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| I-a (H.Till) Series Gymnocalycium-Aggregat Reducta               |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Subgenus Gymnocalycium                                   | Synonym<br>G. borthiiKoop ex H.Till [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| G. neuhuberi H.Till & W.Till                                     | San Luis-Argentina                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. neuhuberi H.Till & W.Till                             | G. reductum (Link) Pfeiffer ex Mittler [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. reductum (Link) Pfeiffer ex Mittler                           | Buenos Aires-Argentina<br>La Pampa-Argentina                         | Cactus reductus Link<br>G. gibbosum v. albispinumCichra nom. inval.<br>G. gibbosum v. leucacanthum(Schumann) Y.Ita nom. inval.<br>G. gibbosum v. nobile(Schumann) Y.Ita nom. inval.<br>G. gibbosum v. polygonum(Schumann) Y.Ita nom. inval.<br>G. gibbosum v. rostratumFleischer nom. inval.<br>G. gibbosum v. schlumbergeri(Schumann) Y.Ita nom. inval.<br>G. mackieanum (Hooker) Metzging<br>G. gibbosum v. reductum(Link) Fric nom. nud.<br>G. gibbosum v. gerardiiY.Ita nom. inval. | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      | Synonym<br>G. mackieanum(Hooker) Metzging [H]<br>G. platense v. ventanicola (Spegazzini) Kiesling[K]<br>G. gibbosum v. nobile(Schumann) Y.Ita nom. inval. [K]<br>G. schatzlianumStrigl & W.Till [K]<br>G. reductum v. platense (Speg.) Kiesling [K]<br>Synonym<br>G. platense(Spegazzini) Briton & Rose [K]<br>G. reductum ssp. leeanum (Hooker) Papsh [H]<br>Synonym<br>G. schatzlianumStrigl & W.Till [H]<br>G. leeanum (Hooker) Britton & Rose [A]<br>G. neuhuberi H.Till & W.Till [H], [A], [K]<br>G. schroederianum Van Osten [H], [A], [K]<br>Synonym<br>G. schroederianum ssp. bayenseKiesling [H], [A]<br>G. schroederianum ssp. paucicostatumKiesling [H], [A]<br>G. schroederianum ssp. bayense Kiesling [K]<br>G. schroederianum ssp. paucicostatumKiesling [K]<br>G. schroederianum ssp. boesiiKiesling, Marchesi, Ferrari [K]<br>Synonym<br>G. erolesiiNeuhuber & L.Bercht |
| G. reductum v. leucodictyon(Salm Dyck) Papsch                    | Buenos Aires-Argentina                                               | G. gibbosum v. leucodictyon(Schumann) Y.Ita nom. inval.<br>G. gibbosum v. caespitosumFric ex Fleischer nom. inval.<br>G. gibbosum v. caespitosum f. intermediumFleischer nom. inval.<br>G. gibbosum v. caespitosum f. minimum Fleischer nom. inval.                                                                                                                                                                                                                                     | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. reductum v. platense (Spegazzini) Kiesling                    | Buenos Aires-Argentina                                               | G. platense (Spegazzini) Briton & Rose<br>G. hyptiacanthum (Lemaire) Britton & Rose <sensu W.Papsh><br>G. leptanthum circulates by wrong name G. platense.                                                                                                                                                                                                                                                                                                                              |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. reductum v. platense f. ventanicolum(Spegazzini) H.Till ined. | Buenos Aires-Argentina                                               | G. gibbosum v. ventanicolum(Spegazzini) Y.Ita nom. inval.<br>G. gibbosum v. ventanicolum(Spegazzini) Kiesling<br>G. platense v. ventanicola(Spegazzini) Kiesling                                                                                                                                                                                                                                                                                                                        | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. reductum ssp. schatzlianum(Strigl & W.Till) H.Till ined.      | Buenos Aires-Argentina                                               | E. leeanum Hooker<br>G. leeanum (Hooker) Britton & Rose<br>G. gibbosum v. balcarcensisVliet nom. nud.<br>G. schatzlianumStrigl & W.Till<br>G. mardeplatense nom. nud.<br>G. hyptiacanthum v. mardeplatensePapsch nom. nud.<br>G. reductum ssp. leeanum (Hooker) Papsch<br>G. reductum ssp. leeanum v. schatzlianum(Strigl & W.Till) Papsh                                                                                                                                               | G. reductum ssp. leeanum(Hooker) Papsch                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. reductum ssp. sibalii (Halda & Milt) Neuhuber                 | La Pampa-Argentina                                                   | G. sibaliiHalda & Milt<br>G. friedlii nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum ssp. ferdinandii Halda, Molina & Milt                | Buenos Aires-Argentina                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. gibbosum ssp. gastonii Halda & Milt                           | Buenos Aires-Argentina                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. reductum ssp. reductum(Link) Pfeiffer ex Mittler      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| I-a (H.Till) Series Gymnocalycium Aggregat Hyptiacantha          |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Subgenus Gymnocalycium                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. hyptiacanthum (Lemaire) Britton & Rose                        | Buenos Aires-Argentina                                               | G. hyptiacanthum v. eleutheracanthus(Monville)Y.Ita nom. inval.<br>G. hyptiacanthum v. megalothelos(Monville)Y.Ita nom. inval.<br>G. hyptiacanthum v. nitidum(Monville) Y.Ita nom. inval<br>G. hyptiacanthum v. nitidum(Monville) Y.Ita nom. inval<br>G. schroederianum ssp. bayenseKiesling < sensu W.Papsch>                                                                                                                                                                          |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. schroederianum Van Osten                                      | Rio Negro-Uruguay<br>Corrientes-Argentina<br>Entre Rio-Argentina     | G. hyptiacanthum ssp. schroederianum(Osten) Papsch                                                                                                                                                                                                                                                                                                                                                                                                                                      | G. schroederianum ssp. schroederianum Van Osten          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. schroederianum ssp. bayense Kiesling                          | Buenos Aires-Argentina                                               | G. hyptiacanthum (Lemaire) Britton & Rose <sensu W.Papsch>                                                                                                                                                                                                                                                                                                                                                                                                                              | G. schroederianum ssp. bayenseKiesling                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. schroederianum ssp. paucicostatumKiesling                     | Corrientes-Argentina                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | G. schroederianum ssp. schroederianum Van Osten          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| G. erolesii Neuhuber & L.Bercht (1-c Quehliana Agg. Quehliana)   | Santafe-Argentina                                                    | G. schroederianum ssp. boesiiKiesling, Marchesi, Ferrari                                                                                                                                                                                                                                                                                                                                                                                                                                | G. schroederianum ssp. boesiiKiesling, Marchesi, Ferrari |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

literature

The Magazine of Gymnocalycium By the Arbeitsgruppe Gymnocalycium (AGG) 1991-2005 David Hunt, Nigel Taylor ,Graham Charles, and their supported team The New Cactus Lexicon 2006 Editorial Committee  
E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinio 2007 Web Page  
Graham Charles Gymnocalycium In Habitat and Culture 2005

A Red character : Texa that should be noted, especially.

A blue character : Texa that should be noted.

This table is designed by Takashi Shimada

Table 2 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About Lafaldensia, Quehliana Group(Aggregat) )

| Classification of Genus <i>Gymnocalycium</i> by AGG and others                                            | Habitat                                 | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                                                                                                                                                                                              | Synonym of rough classification by Mr. Graham Chares                                                   | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-b (H.Till) Series Lafaldense-Aggregat Lafaldensia                                                       |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Subgenus <i>Gymnocalycium</i>                                                                          | <i>G. andreae</i> (Boedeker) Backeberg [H], [K], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>G. andreae</i> (Boedeker) Backeberg                                                                    | Cordoba-Argentina                       | <i>G. andreae</i> v. <i>doppianum</i> nom. nud.<br><i>G. andreae</i> v. <i>fechseri</i> H.Till<br><i>G. andreae</i> v. <i>longispinum</i> Rausch nom. nud.                                                                                                                                                                                                                                                                                                    | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | Synonym<br><i>G. andreae</i> f. <i>svecianum</i> Pazout ex Till [K]<br><i>G. andreae</i> v. <i>grandiflorum</i> Krainz & <i>Andreae</i> [K]                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>G. andreae</i> v. <i>fechseri</i> H.Till                                                               | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | <i>G. andreae</i> ssp. <i>carolinense</i> <i>Neuhuber</i> [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>G. andreae</i> v. <i>grandiflorum</i> Krainz & <i>Andreae</i>                                          | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | Synonym                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>G. andreae</i> v. <i>grandiflorum</i> Krainz & <i>Andreae</i>                                          | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | <i>G. carolinense</i> ( <i>Neuhuber</i> ) <i>Neuhuber</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>G. andreae</i> v. <i>longispinum</i> Rausch                                                            | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | <i>G. baldianum</i> (Spegazzini) Spegazzini [H], [K], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>G. baldianum</i> (Spegazzini) Spegazzini                                                               | Catamarca-Argentina                     | <i>G. sanguiniflorum</i> ( <i>Werdermann</i> ) <i>Werdermann</i> , p.p.<br><i>G. venturianum</i> <i>Fric</i> ex Backeberg , p.p.                                                                                                                                                                                                                                                                                                                              | <i>G. baldianum</i> (Spegazzini) Spegazzini                                                            | Synonym<br><i>G. baldianum</i> v. <i>albiflorum</i> Bercht [K]<br><i>G. rosae</i> H.Till [H]<br><i>G. sanguiniflorum</i> ( <i>Werdermann</i> ) <i>Werdermann</i> [K], [A]<br><i>G. venturianum</i> <i>Fric</i> ex Backeberg [K]                                                                                                                                                                                                                                                                                                          |
| <i>G. baldianum</i> v. <i>venturianum</i> <i>Fric</i> ex Backeberg                                        | Catamarca-Argentina                     | <i>G. venturianum</i> <i>Fric</i> ex Backeberg                                                                                                                                                                                                                                                                                                                                                                                                                | <i>G. baldianum</i> (Spegazzini) Spegazzini                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. marianae</i> Perea, Ferrari, Penas & Kiesling                                                       | Catamarca-Argentina                     | <i>G. sanguiniflorum</i> ( <i>Werdermann</i> ) <i>Werdermann</i>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> (Spegazzini) Hosseus                                                                    | Cordoba-Argentina<br>San Luis-Argentina | <i>G. albispinum</i> Backeberg<br><i>G. lafaldense</i> Vaupel                                                                                                                                                                                                                                                                                                                                                                                                 | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | <i>G. bruchii</i> (Spegazzini) Hosseus [H], [K], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>G. bruchii</i> v. <i>glaucum</i> <i>Neuhuber</i>                                                       | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | Synonym<br><i>G. albispinum</i> Backeberg [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>G. bruchii</i> v. <i>hossei</i> (Backeb. ex Oehme) Backeberg                                           | Cordoba-Argentina                       | <i>G. bruchii</i> ssp. <i>lafaldense</i> ( <i>Vaupel</i> ) <i>Neuhuber</i>                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | <i>G. andreae</i> ssp. <i>carolinense</i> <i>Neuhuber</i> [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. bruchii</i> v. <i>niveum</i> <i>Rausch</i>                                                          | Cordoba-Argentina                       | <i>G. albispinum</i> Backeberg                                                                                                                                                                                                                                                                                                                                                                                                                                | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | <i>G. bruchii</i> v. <i>enorme</i> ( <i>Oehme</i> ) Backeberg [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>G. bruchii</i> ssp. <i>atroviride</i> <i>Neuhuber</i>                                                  | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. lafaldense</i> Vaupel [K], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>G. bruchii</i> ssp. <i>cumbrecitense</i> <i>Neuhuber</i>                                               | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. lafaldense</i> f. <i>hossei</i> ( <i>Backeberg</i> ) <i>Oehme</i> [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>G. bruchii</i> ssp. <i>elegans</i> <i>Neuhuber</i>                                                     | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. bruchii</i> v. <i>brigitae</i> Piltz [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>G. bruchii</i> ssp. <i>implexum</i> <i>Neuhuber</i>                                                    | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>lacumense</i> <i>Neuhuber</i>                                                   | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. bruchii</i> v. <i>niveum</i> <i>Rausch</i> [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>G. bruchii</i> ssp. <i>lafaldense</i> (Vaupel) <i>Neuhuber</i>                                         | Cordoba-Argentina                       | <i>G. lafaldense</i> Vaupel<br><i>G. lafaldense</i> f. <i>deviatum</i> Oehme<br><i>G. lafaldense</i> f. <i>enorme</i> Oehme<br><i>G. lafaldense</i> f. <i>evolvens</i> Oehme<br><i>G. lafaldense</i> f. <i>fraternum</i> Oehme<br><i>G. lafaldense</i> f. <i>hossei</i> ( <i>Backeberg</i> ) <i>Oehme</i><br><i>G. bruchii</i> v. <i>enorme</i> ( <i>Oehme</i> ) Backeberg<br><i>G. bruchii</i> v. <i>spinosissimum</i> ( <i>Haage</i> jr.) Y.Ito nom. inval. | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | Synonym<br><i>G. albispinum</i> Backeberg [K]<br><i>G. rosae</i> H.Till [A]<br><i>G. erinaceum</i> <i>Lambert</i> [H], [A], [K]<br><i>G. robustum</i> R.Kiesling, Ferrari & Metzling [H], [K]<br>Synonym<br><i>G. quehlianum</i> (F.Haage ex Quehl) Vaupel ex Hosseus [H]                                                                                                                                                                                                                                                                |
| <i>G. bruchii</i> ssp. <i>matznetteri</i> (Rausch) <i>Neuhuber</i>                                        | Cordoba-Argentina                       | <i>G. andreae</i> ssp. <i>matznetteri</i> Rausch                                                                                                                                                                                                                                                                                                                                                                                                              | <i>G. andreae</i> (Boedeker) Backeberg                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>matznetteri</i> f. <i>svecianum</i> (Pazout ex Till) <i>Neuhuber</i>            | Cordoba-Argentina                       | <i>G. andreae</i> f. <i>svecianum</i> Pazout ex Till                                                                                                                                                                                                                                                                                                                                                                                                          | <i>G. andreae</i> (Boedeker) Backeberg                                                                 | <i>G. quehlianum</i> (F.Haage ex Quehl) Vaupel ex Hosseus [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. bruchii</i> ssp. <i>matznetteri</i> v. <i>brigitae</i> (Piltz) <i>Neuhuber</i>                      | Cordoba-Argentina                       | <i>G. bruchii</i> v. <i>brigitae</i> Piltz                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | Synonym<br><i>E. quehlianus</i> F. Haage ex Quehl [K]<br><i>G. asterium</i> v. <i>minimum</i> (Pazout) Pazout nom. inval. [K]<br><i>G. quehlianum</i> v. <i>albispinum</i> Backeberg nom. inval. [K]<br><i>G. stellatum</i> v. <i>flavispinum</i> Boszing ex H. Till & W. Till [K]<br><i>G. stellatum</i> v. <i>zantnerianum</i> (Schick) H. Till & W. Till [K]                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>meiojeri</i> <i>Neuhuber</i>                                                    | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>meiojeri</i> v. <i>rubroalabastrum</i> <i>Neuhuber</i>                          | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>multicostatum</i> <i>Neuhuber</i>                                               | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>pawlovsky</i> <i>Neuhuber</i>                                                   | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>renatae</i> <i>Neuhuber</i>                                                     | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. bruchii</i> ssp. <i>shimadae</i> <i>Neuhuber</i>                                                    | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. calochlorum</i> (Boed.) Y.Ito [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>G. bruchii</i> ssp. <i>susannae</i> <i>Neuhuber</i>                                                    | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. bruchii</i> (Spegazzini) Hosseus                                                                 | Synonym                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>G. carolinense</i> ( <i>Neuhuber</i> ) <i>Neuhuber</i>                                                 | San Luis-Argentina                      | <i>G. andreae</i> subsp. <i>carolinense</i> <i>Neuhuber</i>                                                                                                                                                                                                                                                                                                                                                                                                   | <i>G. carolinense</i> ( <i>Neuhuber</i> ) <i>Neuhuber</i>                                              | <i>G. calochlorum</i> v. <i>proliferum</i> ( <i>Backeberg</i> ) Backeberg [H], [A], [K]<br><i>G. proliferum</i> ( <i>Backeberg</i> ) Backeberg [H], [A]<br><i>G. papschii</i> H.Till [H]                                                                                                                                                                                                                                                                                                                                                 |
| <i>G. carolinense</i> v. <i>eltrebolense</i> <i>Neuhuber</i>                                              |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. carolinense</i> v. <i>ludwigii</i> <i>Neuhuber</i>                                                  |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. raineri</i> H.Till                                                                                  | Catamarca-Argentina                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. baldianum</i> (Spegazzini) Spegazzini                                                            | <i>G. leptanthum</i> (Spegazzini) Spegazzini [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>G. rosae</i> H.Till                                                                                    | Salta-Argentina<br>Catamarca-Argentina  | <i>G. baldianum</i> v. <i>albiflorum</i> Bercht<br><i>G. kieslingii</i> Ferrari s.l.                                                                                                                                                                                                                                                                                                                                                                          | <i>G. kieslingii</i> Ferrari                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. schreiteri</i> H. Till                                                                              | Salta-Argentina                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                        | <i>G. platense</i> (Spegazzini) Britton & Rose [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. uebelmanianum</i> W. Rausch                                                                         | La Rioja-Argentina                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. uebelmanianum</i> Rausch                                                                         | <i>G. terweeaneanum</i> (Teuq ex Duursma)Borgmann & Piltz [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| I-c (H.Till) Series Quehliana-Aggregat Quehliana                                                          |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Subgenus <i>Gymnocalycium</i>                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. erinaceum</i> J.G.Lambert                                                                           | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. erinaceum</i> J.G.Lambert                                                                        | <i>G. uebelmanianum</i> Rausch [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>G. erinaceum</i> v. <i>paucisquamosum</i> J.Piltz                                                      | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. erinaceum</i> J.G.Lambert                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. erolesii</i> <i>Neuhuber</i> & L.Bercht                                                             | Santafe-Argentina                       | <i>G. schroederianum</i> ssp. <i>boesii</i> Kiesling, Marchesi, Ferrari                                                                                                                                                                                                                                                                                                                                                                                       | <i>G. schroederianum</i> ssp. <i>boesii</i> Kiesling, Marchesi, Ferrari                                | <i>G. leptanthum</i> ; A name of uncertain application apparently based on a mixture of species.<br><i>G. terweeaneanum</i> ; Synonym of <i>G.bertcii</i> <i>Neuhuber</i> [H]<br><i>G. parvulum</i> ; Adopted by Till for plants is resembling the later-named <i>G. calochlorum</i> [H]<br><i>G. hyptiacanthum</i> ; Another untypifiable name of disputed application, best abandoned.<br>The unsupported neotype proposed by Kiesling[H]<br><i>G. platense</i> ; A name long-misapplied to plants from Cordoba and best abandoned.[H] |
| <i>G. frankianum</i> Rausch ex H. Till & Amerhauser                                                       | Santiago de Estero-Argentina            |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. kieslingii</i> Ferrari                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. kuehhasii</i> <i>Neuhuber</i> & R. Sperling                                                         | Cordoba-Argentina                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <i>G. robustum</i> R.Kiesling, Ferrari & Metzling<br><i>G. robustum</i> R.Kiesling, Ferrari & Metzling |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. quehlianum</i> (F.Haage ex Quehl) Vaupel ex Hosseus                                                 | Cordoba-Argentina                       | <i>E. quehlianus</i> F. Haage ex Quehl<br><i>G. cordobensis</i> nom. nud.<br><i>G. robustum</i> R.Kiesling, Ferrari & Metzling                                                                                                                                                                                                                                                                                                                                |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. quehlianum</i> ssp. <i>leptanthum</i> (Speg.) H.Till & Amerhauser                                   | Cordoba-Argentina                       | <i>G. leptanthum</i> (Spegazzini) Spegazzini<br><i>G. leptanthum</i> circulates by wrong name <i>G. platense</i> .                                                                                                                                                                                                                                                                                                                                            | Names of Uncertain Application                                                                         | <i>G. quehlianum</i> and <i>G. stellatum</i> were confused for a long time. We adopt <i>G. robustum</i> for the <i>Ovatisemineum</i> 's species and <i>G. stellatum</i> for the <i>Trichomosemineum</i> 's species[H]                                                                                                                                                                                                                                                                                                                    |
| <i>G. quehlianum</i> ssp. <i>leptanthum</i> v. <i>calochlorum</i> (Boed.) H.Till & Amerhauser             | Cordoba-Argentina                       | <i>G. calochlorum</i> (Boedeker) Y.Ito                                                                                                                                                                                                                                                                                                                                                                                                                        | <i>G. calochlorum</i> (Boedeker) Y.Ito                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>G. quehlianum</i> ssp. <i>leptanthum</i> v. <i>terweeaneanum</i> (Teuq ex Duursma) H.Till & Amerhauser | Mendoza-Argentina<br>San Luis-Argentina | <i>G. terweeaneanum</i> (Teuq ex Duursma) Borgmann et Piltz                                                                                                                                                                                                                                                                                                                                                                                                   | Names of Uncertain Application                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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A Red character : Texta that should be noted, especially.

A blue character : Texta that should be noted.

This table is designed by Takashi Shimada

**Table 3 ; Comparison between detailed classification of Genus Gymnocalycium by AGG and other rough classifications (About Capillensia, Parvula, Kieslingia Group(Aggregat) )**

| Classification of Genus Gymnocalycium by AGG and others            | Habitat                                   | Synonym<br>(depends on AGG etc.)                                                                                                         | Synonym of rough classification by Mr. Graham Chares                                  | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                   |
|--------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>I-c (H.Till) Series Quehliana-Aggregat Capillensia</b>          |                                           |                                                                                                                                          | <b>Subgenus Gymnocalycium</b>                                                         | <b>G. capillense (Schick) Hosseus</b> [H], [A], [K]                                                                                                                                            |
| G. capillense (Schick) Hosseus                                     | Cordoba- Argentina<br>San Luis- Argentina | G. capillaense (Schick) Hosseus                                                                                                          | G. capillaense (Schick) Hosseus                                                       | <b>Synonym</b><br>G. sigelianum(Schick) Hosseus [H], [A], [K]<br>G. sutterianum(Schick) Hosseus [H], [A], [K]<br>G. fischeri Halda, Kupcak, Lukasik & Sladovsky ? [H]<br>G. deeszianumDölz [K] |
| G. capillense v. mucidum (Oehme) H.Till                            | Cordoba- Argentina                        | G. mucidum Oehme sensu H.Till                                                                                                            | G. capillaense (Schick) Hosseus<br>Names of Uncertain Application for G. mucidumOehme | <b>G. deeszianum Dölz</b> [A]                                                                                                                                                                  |
| G. capillense v. sigelianum (Shick) H.Till                         | Cordoba- Argentina<br>San Luis- Argentina | G. sigelianum (Schick) Hosseus                                                                                                           | G. capillaense (Schick) Hosseus                                                       |                                                                                                                                                                                                |
| G. deeszianum Dölz                                                 | Cordoba- Argentina                        | G. capillense v. sigelianum f. deeszianum                                                                                                | G. capillaense (Schick) Hosseus                                                       | <b>G. stuckertii (Speg.) Britton &amp; Rose</b> [A], [K]<br>Names of Uncertain Application <Graham Chares>                                                                                     |
| G. fischeri Halda, Kupcak, Lukasik & Sladovsky                     | San Luis- Argentina                       | G. stuckertii (Speg.) Britton & Rose , p.p.<br>G. miltii Halda, Kupcak, Lukasik & Sladovsky                                              | G. fischeri Halda, Kupcak, Lukasik & Sladovsky                                        | <b>G. parvulum (Spegazzini) Spegazzini</b> [A], [K]                                                                                                                                            |
| G. fischeri ssp. suyuquense F.Berger                               | San Luis- Argentina                       |                                                                                                                                          | G. fischeri Halda, Kupcak, Lukasik & Sladovsky                                        | <b>Synonym</b><br>G. berctii Neuhuber [K]                                                                                                                                                      |
| G. miltii Halda, Kupcak, Lukasik & Sladovsky                       | San Luis- Argentina                       | G. sunluisense nom. nud.<br>G. fischeri Halda, Kupcak, Lukasik & Sladovsky                                                               | G. fischeri Halda, Kupcak, Lukasik & Sladovsky                                        | <b>G. calochlorum (Boed.) Y.Ito</b> [H], [A], [K]                                                                                                                                              |
| G. sutterianum (Schick) Hosseus                                    | San Luis- Argentina<br>Cordoba- Argentina | G. sunluisense nom. nud.                                                                                                                 | G. capillaense (Schick) Hosseus                                                       | <b>Synonym</b><br>G. calochlorum v. proliferum(Backeberg) Backeberg [H], [A], [K]<br>G. proliferum(Backeberg) Backeberg [H], [A]<br>G. papschii H.Till [H]                                     |
| <b>I-c (H.Till) Series Quehliana-Aggregat Parvula</b>              |                                           |                                                                                                                                          | <b>Subgenus Gymnocalycium</b>                                                         | <b>G. x heidiae Neuhuber</b> [H]                                                                                                                                                               |
| G. papschii H.Till                                                 | Cordoba-Argentina                         |                                                                                                                                          | G. erinaceum J.G.Lambert                                                              | G. baldianum hybrid {G.rosae x G.}? [H]                                                                                                                                                        |
| G. parvulum (Spegazzini) Spegazzin sensu Till                      | Cordoba-Argentina                         | G. calochlorum v. proliferum(Backeberg) Backeberg , p.p<br>G. proliferum(Backeberg) Backeberg .p.p                                       | Names of Uncertain Application                                                        | <b>G. kieslingii Ferrari</b> [H], [K], [A]                                                                                                                                                     |
| G. parvulum (Spegazzini) Spegazzini ssp. amoenum (H.Till) F.Berger | Cordoba-Argentina                         | G. parvulum (Spegazzini) Spegazzini v. amoenum H.Till<br>G. amoenum (H.Till) Lambert                                                     | G. calochlorum (Boedeker) Y.Ito                                                       | <b>G. kieslingii f. albiareolatum Ferrari</b> [K]                                                                                                                                              |
| G. parvulum (Spegazzini) Spegazzini ssp. huettneri F.Berger        | Cordoba-Argentina                         |                                                                                                                                          |                                                                                       | <b>G. kieslingii f. castaneum Ferrari</b> [K]                                                                                                                                                  |
| <b>I-c (H.Till) Series Quehliana-Aggregat Kieslingia</b>           |                                           |                                                                                                                                          | <b>Subgenus Gymnocalycium</b>                                                         | <b>G. baldianum (Spegazzini) Spegazzini</b> [H], [K], [A]                                                                                                                                      |
| G. x heidiae Neuhuber                                              | Catamarca-Argentina                       | G. baldianum (Spegazzini) Spegazzini , p.p.<br>G. sanguiniflorum(Werdermann) Werdermann , p.p.<br>G. venturianumFric ex Backeberg , p.p. | G. baldianum (Spegazzini) Spegazzini , p.p.                                           | <b>Synonym</b><br>G. baldianum v. albiflorumBercht [K]<br>G. rosae H.Till [H]<br>G. sanguiniflorum(Werdermann) Werdermann [K], [A]<br>G. venturianumFric ex Backeberg [K]                      |
| G. kieslingii Ferrari                                              | La Rioja- Argentina                       | G. rosae H.Till s.l.<br>G. baldianum v. albiflorumBercht                                                                                 | G. kieslingii Ferrari                                                                 |                                                                                                                                                                                                |
| G. kieslingii f. albiareolatum Ferrari                             | La Rioja- Argentina                       |                                                                                                                                          | G. kieslingii Ferrari                                                                 |                                                                                                                                                                                                |
| G. kieslingii f. castaneum Ferrari                                 | La Rioja- Argentina                       |                                                                                                                                          | G. kieslingii Ferrari                                                                 |                                                                                                                                                                                                |
| G. sanguiniflorum (Werdermann) Werdermann                          | Catamarca-Argentina                       | G.marianae Perea, Ferrari, Penas & Kiesling                                                                                              | G. baldianum (Spegazzini) Spegazzini                                                  |                                                                                                                                                                                                |

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**A Red character** : Texa that should be noted, especially.

**A blue character** : Texa that should be noted.

**This table is designed by Takashi Shimada**



Table 4 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About *Borthiana*, *Berciana*, *Amerhauseriana* Group(Aggregat) )

| Classification of Genus <i>Gymnocalycium</i> by AGG and others                   | Habitat                                 | Synonym<br>(depends on AGG etc.)                                                                                                         | Synonym of rough classification by Mr. Graham Chares           | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I-c (H.Till) Series <i>Quehliana</i> -Aggregat <i>Borthiana</i>                  |                                         |                                                                                                                                          | Subgenus <i>Gymnocalycium</i>                                  | <i>G. gibbosum</i> (Haworth) Pfeiffer ex Mittler [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>G. borthii</i> Koop ex H.Till                                                 | San Luis-Argentina                      |                                                                                                                                          | <i>G. gibbosum</i> ssp. <i>borthii</i> (Koop ex H.Till) Chares | Synonym<br><i>G. gibbosum</i> f. <i>ferox</i> (Labouret) Slaba nom. inval. [H]<br><i>G. gibbosum</i> v. <i>ferox</i> (Labouret) Y.Ito nom. inval. [H], [K]<br><i>G. gibbosum</i> v. <i>brachypetalum</i> (Spegazzini) Papsch [H], [A]<br><i>G. gibbosum</i> v. <i>celsianum</i> (Labouret) Y.Ito nom. inval. [K]<br><i>G. gibbosum</i> v. <i>fenellii</i> (Haage ex Quehl) Y.Ito nom. inval. [K]<br><i>G. chubutense</i> (Spegazzini) Spegazzini[A], [K]<br><i>G. gibbosum</i> ssp. <i>ferox</i> (Labouret ex Rümpler) Papsch [H], [A], [K]<br><i>G. reductum</i> (Link) Pfeiffer ex Mittler [A]<br><i>G. gibbosum</i> v. <i>gerardii</i> Y.Ito nom. inval. [A]<br><i>G. borthii</i> Koop ex H.Till [K]<br><i>G. striglianum</i> Jeggle ex H.Till [K] |
| <i>G. borthii</i> v. <i>viridis</i> Neuhauser                                    | San Luis-Argentina                      |                                                                                                                                          | <i>G. gibbosum</i> ssp. <i>borthii</i> (Koop ex H.Till) Chares |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. borthii</i> ssp. <i>kokori</i> Haida & Milt                                | San Luis-Argentina                      |                                                                                                                                          | <i>G. gibbosum</i> ssp. <i>borthii</i> (Koop ex H.Till) Chares |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. borthii</i> ssp. <i>nogolense</i> Neuhauser                                | San Luis-Argentina                      |                                                                                                                                          | <i>G. gibbosum</i> ssp. <i>borthii</i> (Koop ex H.Till) Chares |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. kroenleinii</i> Kiesling                                                   | La Rioja- Argentina                     |                                                                                                                                          | <i>G. kroenleinii</i> Kiesling                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. striglianum</i> Jeggle ex H.Till                                           | Mendoza-Argentina<br>La Pampa-Argentina |                                                                                                                                          | <i>G. striglianum</i> Jeggle ex H.Till                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. striglianum</i> ssp. <i>aeneum</i> M.Meregalli & L.Guglelmine              | San Luis-Argentina                      |                                                                                                                                          | <i>G. striglianum</i> Jeggle ex H.Till                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. striglianum</i> ssp. <i>otmari</i> Halda & Milt                            | La Pampa-Argentina                      |                                                                                                                                          | <i>G. striglianum</i> Jeggle ex H.Till                         | <i>G. gibbosum</i> ssp. <i>borthii</i> (Koop ex H.Till) Chares [H]<br>Synonym<br><i>G. borthii</i> Koop ex H.Till [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>G. tanningaense</i> J.Piltz                                                   | Cordoba- Argentina                      |                                                                                                                                          | <i>G. tanningaense</i> Piltz                                   | <i>G. borthii</i> Koop ex H.Till [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>G. tanningaense</i> v. <i>lukasikii</i> (Halda & Kupcak) Neuhauser            | San Luis- Argentina                     | <i>G. lukasikii</i> Halda & Kupcak                                                                                                       | <i>G. tanningaense</i> Piltz                                   | <i>G. kroenleinii</i> Kiesling [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>G. tanningaense</i> v. <i>lukasiki</i> f. <i>emilii</i> (Halda & Milt) H.Till | San Luis-Argentina                      | <i>G. lukasiki</i> v. <i>emilii</i> Halda & Milt<br><i>G. berchtianum</i> nom. nud.                                                      | <i>G. tanningaense</i> Piltz                                   | <i>G. striglianum</i> Jeggle ex H.Till [H], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. tanningaense</i> ssp. <i>fuschilloi</i> Neuhauser                          | Cordoba- Argentina                      |                                                                                                                                          | <i>G. tanningaense</i> Piltz                                   | <i>G. tanningaense</i> Piltz [H], [A], [K]<br>Synonym<br><i>G. gaponii</i> Neuhauser [H], [K]<br><i>G. tanningaense</i> ssp. <i>fuschilloi</i> Neuhauser [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| I-c (H.Till) Series <i>Quehliana</i> -Aggregat <i>Berciana</i>                   |                                         |                                                                                                                                          | Subgenus <i>Gymnocalycium</i>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. berchtii</i> Neuhauser                                                     | San Luis- Argentina                     | <i>G. parvulum</i> (Spegazzini) Spegazzin sensu Kiesling                                                                                 | <i>G. berchtii</i> Neuhauser                                   | <i>G. berchtii</i> Neuhauser [H], [A]<br>Synonym<br><i>G. terweemeanum</i> (Teuq ex Duursma) Borgmann et Piltz [H]<br><i>G. poeschlii</i> Neuhauser ? [H]<br><i>G. parvulum</i> (Spegazzini) Spegazzin sensu Kiesling [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>G. nataliae</i> Neuhauser                                                     | San Luis- Argentina                     | <i>G. berchtii</i> Neuhauser s. lato                                                                                                     | <i>G. berchtii</i> Neuhauser                                   | <i>G. parvulum</i> (Spegazzini) Spegazzini [A], [K]<br>Synonym<br><i>G. berctii</i> Neuhauser [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>G. nataliae</i> v. <i>morroense</i> nom. nud.                                 | San Luis- Argentina                     | <i>G. berchtianum</i> nom. nud.<br><i>G. berctii</i> ssp. <i>nataliae</i> v. <i>morroense</i> nom. nud.<br><i>G. motroense</i> nom. nud. | <i>G. berchtii</i> Neuhauser                                   | <i>G. amerhauseri</i> H.Till [H], [K], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>G. poeschlii</i> Neuhauser                                                    | San Luis- Argentina                     |                                                                                                                                          | <i>G. fischeri</i> Halda, Kupcak, Lukasik & Sladovsky          | <i>G. erinaceum</i> Lambert [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>G. poeschlii</i> ssp. <i>dolezalii</i> Halda & Milt                           | Cordoba-Argentina                       | <i>G. lepidum</i> nom. nud.                                                                                                              |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| I-c (H.Till) Series <i>Quehliana</i> -Aggregat <i>Amerhauseriana</i>             |                                         |                                                                                                                                          | Subgenus <i>Gymnocalycium</i>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. amerhauseri</i> H.Till                                                     | Cordoba-Argentina                       |                                                                                                                                          | <i>G. amerhauseri</i> H.Till                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. amerhauseri</i> ssp. <i>altagraciens</i> H.Till & Amerhauser               | Cordoba-Argentina                       | <i>G. altagraciense</i> Bozsing ex Schütz nom. nud.                                                                                      | <i>G. amerhauseri</i> H.Till                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. frankianum</i> Rausch ex H.Till & Amerhauser                               | Catamarca-Argentina                     |                                                                                                                                          | <i>G. kieslingii</i> Ferrari                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. gaponii</i> Neuhauser                                                      | Cordoba- Argentina                      | <i>G. genseri</i> nom. nud.                                                                                                              | <i>G. erinaceum</i> J.G.Lambert                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. gaponii</i> ssp. <i>geyeri</i> Neuhauser & Gapon                           | Cordoba- Argentina                      |                                                                                                                                          | <i>G. erinaceum</i> J.G.Lambert                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>G. walteri</i> H.Till                                                         | Cordoba- Argentina                      |                                                                                                                                          | <i>G. amerhauseri</i> H.Till                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**literature**  
The Magazine of *Gymnocalycium* By the Arbeitsgruppe *Gymnocalycium* (AGG) 1991-2009 David Hunt, Nigel Taylor ,Graham Charles, and their supported team The New Cactus Lexicon 2006 Editorial Committee E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinion 2007 Web Page Graham Charles *Gymnocalycium* In Habitat and Culture 2009

A Red character : Texa that should be noted, especially.  
A blue character : Texa that should be noted.  
This table is designed by Takashi Shimada

**Table 5 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About Mostiana, Hosseiana, Oenanthe Group(Aggregat) )**

| Classification of Genus <i>Gymnocalycium</i> by AGG and others                                                                               | Habitat                                    | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                      | Synonym of rough classification by Mr. Graham Chares              | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-A-AI-d (H.Till) Series Mostiana-Aggregat Mostiana</b>                                                                                    |                                            |                                                                                                                                                                                                                                                                                       | <b>Subgenus Microsemineum</b>                                     | <b>G. mostii (Gürke) Britton &amp; Rose</b> [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>G. mosti (Gürke) Britton &amp; Rose</b>                                                                                                   | Cordoba- Argentina                         |                                                                                                                                                                                                                                                                                       | G. mosti (Gürke) Britton & Rose                                   | <b>Synonym</b><br>G. bicolorSchütz [A], [K]<br>G. tobuschianumSchick [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>G. mostii v. immemoratum(Casellanos &amp; Lelong) H.Till &amp; Amerhauser</b>                                                             | Cordoba- Argentina                         | G. immemoratum <i>Castellanos &amp; Lelong</i><br>G. valnicekianum v. polycentralisSchütz<br>G. froehlichianum sensu <i>van Osten</i><br>G. tobuschianumSchick (The first description belongs to G.monvillei)<br>G. mostii v. immemoratum circulates by the name of G. valnicekianum. | G. mostii ssp. valnicekianum(Jajo) <i>Meregallii &amp; Chares</i> | G. immemoratum <i>Castellanos &amp; Lelong</i> [A], [K]<br>G. kurtzianum (Gürke) Britton & Rose [H], [A], [K]<br>G. mostii v. kurtzianum(Gürke) Backeberg [K]<br>G. valnicekianumJajo [A], [K]<br>G. valnicekianum v. polycentralisSchütz [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>G. mostii v. kurtzianum (Gürke) H.Till &amp; Amerhaser</b>                                                                                | Cordoba- Argentina                         | G. mostii v. kurtzianum(Gürke) Backeberg<br>G. kurtzianum (Gürke) Britton & Rose                                                                                                                                                                                                      | G. mosti (Gürke) Britton & Rose                                   | <b>G. valnicekianum Jajo</b> [H] ?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>G. mostii var. miradorensisH.Till &amp; Amerhauser</b>                                                                                    | Cordoba- Argentina                         |                                                                                                                                                                                                                                                                                       | G. mosti (Gürke) Britton & Rose                                   | <b>G. prochazkianum Sorma</b> [H]<br>To be evaluated [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>G. mostii ssp. ferocior(Backebg.) H.Till &amp; Amerhauser</b>                                                                             | Cordoba- Argentina<br>La Rioja- Argentina  | G. hybopleurum v. ferociorBackeberg nom. inval.<br>G. hybopleurum v. feroxBackeberg nom. inval.                                                                                                                                                                                       | G. castellanosi ssp. ferocius(H.Till & Amerhauser) Chares         | <b>G. castellanosi ssp. ferocior(Till &amp; Amerhauser) G.Charles</b> [H]<br><b>Synonym</b><br>G. mostii ssp. ferocior(Backebg.) H.Till & Amerhauser [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>G. valnicekianum Jajo</b>                                                                                                                 | Cordoba- Argentina                         | G. genseri nom. nud.<br>G. mostii v. stenocostatum nom. nud.<br>G. mostii v. genseri nom. nud.<br>G. curvispinum v. acuticostatum nom. nud., p.p.                                                                                                                                     | G. mostii ssp. valnicekianum(Jajo) <i>Meregallii &amp; Chares</i> | <b>G. glaucum</b> [H]<br><b>G. glaucum ssp. ferrarii</b> [H]<br><b>G. mucidum Oehme</b> sensu Piltz, Metzger & Schweitzer [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>G. valnicekianum v. bicolor(Schutz) H.Till &amp; Amerhauser</b>                                                                           | Cordoba- Argentina                         | G. bicolorSchütz<br>G. bicolor v. simplex nom. nud.<br>G. curvispinum v. acuticostatum nom. nud., p.p.                                                                                                                                                                                | G. mostii ssp. valnicekianum(Jajo) <i>Meregallii &amp; Chares</i> | <b>Synonym</b><br>G. ferrariiRausch [A], [K]<br>G. glaucum Ritter [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>G. valnicekianum ssp. prochazkianum(Sorma) H.Till &amp; Amerhauser</b>                                                                    | Cordoba- Argentina                         | G. prochazkianum Sorma                                                                                                                                                                                                                                                                | G. mostii ssp. valnicekianum(Jajo) <i>Meregallii &amp; Chares</i> | <b>G. hossei (F. Haage) A.W. Hill</b> [H], [A]<br><b>Synonym</b><br>G. mazanense (Backeberg) Backeberg [H], [A]<br>G. nidulansFric ex Backeberg [H], [A]<br>G. weissianumBackeberg [H], [A]<br>G. rhodanthemum (Boedeker) Backeberg [A]<br>G. guanchinenseSchütz [A]<br><b>G. mazanense (Backeberg) Backeberg</b> [K]<br><b>Synonym</b><br>G. mazanense v. breviflorum (Backeberg) Backeberg [K]<br>G. mazanense v. ferox Backeberg nom. inval. [K]<br>G. nidulansFric ex Backeberg [K]<br>G. weissianumBackeberg [K]<br>G. weissianum v. atroseum Backeberg nom. inval. [K]<br>G. weissianum v. cinerascens Backeberg nom. inval. [K]<br><b>G. hybopleurum (Schumann) Backeberg</b> [A], [K] |
| <b>-A-AI-d (H.Till) Series Mostiana-Aggregat Hosseiana</b>                                                                                   |                                            |                                                                                                                                                                                                                                                                                       | <b>Subgenus Microsemineum</b>                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. ferrarii Rausch</b>                                                                                                                    | La Rioja- Argentina<br>Catamarca-Argentina | G. mucidum v. ferrarii                                                                                                                                                                                                                                                                | G. glaucum ssp. ferrarii(Rausch) Chares                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. ferrarii v. elegansRausch &amp; Kiesling nom. nud.</b>                                                                                 | La Rioja- Argentina                        |                                                                                                                                                                                                                                                                                       | <b>G. glaucum ssp. ferrarii(Rausch) Chares</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. hossei (F. Haage) A.W. Hill</b>                                                                                                        | La Rioja- Argentina                        | G. mazanense (Backeberg) Backeberg<br>G. mazanense v. feroxBackeberg nom. inval.<br><b>G. weissianum Backeberg</b><br>G. azureum nom. nud.                                                                                                                                            | G. hossei F. Haage                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. hossei v. breviflorum(Backebg.) H.Till</b>                                                                                             | La Rioja- Argentina                        | G. mazanense v. breviflorum(Backeberg) Backeberg                                                                                                                                                                                                                                      | G. hossei F. Haage                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. hossei v. nidulans (Backebg.) H.Till</b>                                                                                               | La Rioja- Argentina                        | G. nidulans Fric ex Backeberg<br>G. pugionacanthum Backeberg ex H.Till sensu Till<br>G. demetianum nom.nud.<br>G. hybopleurum v. euchlorum nom.nud., p.p.                                                                                                                             | G. hossei F. Haage                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>-A-AI-d (H.Till) Series Mostiana-Aggregat Oenanthe</b>                                                                                    |                                            |                                                                                                                                                                                                                                                                                       | <b>Subgenus Microsemineum</b>                                     | <b>Synonym</b> The opinion of E.Anderson and R.Kiesling is different.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>G. ambatoense J.Piltz</b>                                                                                                                 | Catamarca-Argentina                        |                                                                                                                                                                                                                                                                                       | G. oenanthemum Backeberg                                          | G. nigriareolatumBackeberg [A]<br>G. nigriareolatum v. densispinumBackeberg ex H.Till [A]<br>G. nigriareolatum v. simoiH. Till [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>G. ambatoense ssp. plesnikiHalda &amp; Milt</b>                                                                                           | Catamarca- Argentina                       | G. sp. LTR From Fechner                                                                                                                                                                                                                                                               | G. oenanthemum Backeberg                                          | G. ambatoense Piltz [K]<br>G. castellanosi ssp. ferocior(Till & Amerhauser) G. Charles [K]<br>G. catamarcense H.Till & W.Till, p.p [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>G. nigriareolatum Backeberg</b>                                                                                                           | Catamarca- Argentina                       | G. curvispinum Fric. nom. nud.<br>G. curvispinum v. porzeuuello nom. nud.                                                                                                                                                                                                             | G. nigriareolatumBackeberg                                        | G. catamarcense ssp. acinacispinumH.Till & W.Till [K]<br>G. catamarcense ssp. schmidianumH.Till & W.Till [K]<br>G. hybopleurum v. breviflorumBackeberg nom. inval. [K]<br>G. hybopleurum v. centrispinumBackeberg nom. inval. [K]<br>G. hybopleurum v. euchlorum nom. nud.[K]<br>G. hybopleurum v. feroxBackeberg nom. inval. [K]<br>G. mostii ssp. ferocior(Backebg.) H.Till & Amerhauser [K]<br>G. nigriareolatumBackeberg [K]                                                                                                                                                                                                                                                              |
| <b>G. nigriareolatum f. carneumH.Till</b>                                                                                                    | Catamarca- Argentina                       |                                                                                                                                                                                                                                                                                       | G. nigriareolatum Backeberg                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. nigriareolatum v. densispinumBackeberg ex H.Till</b>                                                                                   | Catamarca- Argentina                       | G. hybopleurum v. centrispinumBackeberg nom. inval.?<br>G. hybopleurum v. breviflorumBackeberg nom. inval.?                                                                                                                                                                           | G. nigriareolatumBackeberg                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. nigriareolatum v. simoiH. Till</b>                                                                                                     | Catamarca- Argentina                       | G. hybopleurum (Schumann) Backeberg , p.p                                                                                                                                                                                                                                             | G. nigriareolatum Backeberg                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. oenanthemum Backeberg</b>                                                                                                              | Catamarca- Argentina                       | G. carminanthum Borth et Koop , p.p.<br>G. tillianumRausch , p.p.<br>G. nigriareolatum f. carneum H.Till ?                                                                                                                                                                            | G. oenanthemum Backeberg                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. oenanthemum ssp. carminanthum(Borth &amp; Koop) H.Till</b>                                                                             | Catamarca- Argentina                       | G. carminanthum Borth et Koop                                                                                                                                                                                                                                                         | G. oenanthemum Backeberg                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. tillianum W.Rausch</b>                                                                                                                 | Catamarca- Argentina                       |                                                                                                                                                                                                                                                                                       | G. oenanthemum Backeberg                                          | <b>G. nigriareolatum Backeberg</b> [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>G. tillianum ssp. montanum(Slaba) F.Berger</b>                                                                                            | Catamarca- Argentina                       | G. carminanthum v. montanum Slaba                                                                                                                                                                                                                                                     | G. oenanthemum Backeberg                                          | <b>Synonym</b><br>G. nigriareolatum v. densispinumBackeberg ex H.Till [H]<br>G. nigriareolatum v. simoiH.Till [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>G. curvispinum Fric. n. n.</b><br>This is another Species By Mr. Neuhuber's personal opinion.                                             | Catamarca- Argentina                       | <b>G. nigriareolatumBackeberg</b>                                                                                                                                                                                                                                                     | G. nigriareolatumBackeberg                                        | <b>G. ambatoense Piltz</b> [A]<br><b>G. carminanthum Borth et Koop</b> [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>G. nigriareoratum aff.</b>                                                                                                                | Catamarca- Argentina                       | G. hybopleurum (Schumann) Backeberg , p.p<br>G. hybopleurum v. centrispinumBackeberg nom. inval.<br>G. hybopleurum v. breviflorumBackeberg nom. inval.<br>G. hybopleurum v. pirqu nom. nud.<br>G. hybopleurum v. euchlorum nom. nud., p.p. ?                                          | G. nigriareolatumBackeberg                                        | <b>G. tillianum Rausch</b> [A]<br><b>G. oenanthemum Backeberg</b> [H], [K]<br><b>Synonym</b><br>G. ambatoensePiltz [H]<br>G. carminanthum Borth et Koop [H], [K]<br>G. tillianumRausch [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| The species that relates to G.nigriareoratum assumed to be G.hybopleurum in the east from Sierra del Manchao is an indetermination. (H.Till) |                                            |                                                                                                                                                                                                                                                                                       |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**literature**

The Magazine of Gymnocalycium By the Arbeitsgruppe Gymnocalycium (AGG) 1991-2005 David Hunt, Nigel Taylor ,Graham Charles, and their supported team The New Cactus Lexicon 2006 Editorial Committee  
E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinio 2007 Web Page  
Graham Charles Gymnocalycium In Habitat and Culture 2005

**A Red character** : Texa that should be noted, especially.

**A blue character** : Texa that should be noted.

**This table is designed by Takashi Shimada**

**Table 6 ; Comparison between detailed classification of Genus Gymnocalycium by AGG and other rough classifications (About Rhodanthera, Spegaziniana Group(Aggregat) )**

| Classification of Genus Gymnocalycium by AGG and others       | Habitat                                                       | Synonym<br>(depends on AGG etc.)                                                                      | Synonym of rough classification by Mr. Graham Chares | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>-A-AI-d (H.Till) Series Mostiana-Aggregat Rhodanthera</b>  |                                                               |                                                                                                       |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. alboareolatum W.Rausch                                     | La Rioja-Argentina                                            | G. albiareolatumRausch                                                                                | G. albiareolatumRausch                               | G. albiareolatumRausch [H], [A], [K]<br><b>Synonym</b><br>G. albiareolatum v. ramosumRausch [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. alboareolatum v. ramosum W.Rausch                          | La Rioja-Argentina                                            |                                                                                                       | G. albiareolatumRausch                               | G. rhodantherum(Boedeker) Backeberg [H]<br><b>Synonym</b><br>G. jochumiiNeuhuber [H]<br>G. guanchinenseSchütz [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| G. guanchinense Schütz                                        | La Rioja-Argentina                                            |                                                                                                       | G. rhodantherum(Boedeker) Backeberg                  | G. ritterianum Rausch [H], [A], [K]<br><b>G. hossei (F. Haage) A.W. Hill</b> [H], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| G. jochumii Neuhuber                                          | La Rioja-Argentina                                            |                                                                                                       | G. ritterianumRausch                                 | <b>Synonym</b><br>G. mazanense(Backeberg) Backeberg [H], [A]<br>G. nidulansFric ex Backeberg [H], [A]<br>G. weissianumBackeberg [H], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| G. jochumii v. jugumNeuhuber                                  | La Rioja-Argentina                                            |                                                                                                       | G. ritterianumRausch                                 | G. rhodantherum(Boedeker) Backeberg [A]<br>G. guanchinenseSchütz [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| G. rhodantherum(Boedeker) H.Till                              | La Rioja-Argentina                                            | G. mazanense v. rhodantherum(Boedeker) Backeberg nom. illeg.<br>G. famatimensisRausch nom. nud., p.p. | G. rhodantherum(Boedeker) Backeberg                  | G. mazanense(Backeberg) Backeberg [K]<br>G. mazanense v. ferox Backeberg nom. inval.[K]<br>G. nidulansFric ex Backeberg [K]<br>G. weissianumBackeberg [K]                                                                                                                                                                                                                                                                                                                                                                                                                   |
| G. rhodantherum v. cinerascens H.Till                         | La Rioja-Argentina                                            | G. weissianum v. cinerascensBackeberg nom. inval.                                                     | G. rhodantherum(Boedeker) Backeberg                  | G. weissianum v. atroseum Backeberg nom. inval.[K]<br>G. weissianum v. cinerascens Backeberg nom. inval. [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| G. ritterianum W.Rausch                                       | La Rioja-Argentina                                            | G. famatimensisRausch nom., nud. p.p.                                                                 | G. ritterianumRausch                                 | <b>G. mazanense(Backeberg) Backeberg</b> [K]<br><b>Synonym</b><br>G. mazanense v. breviflorum(Backeberg) Backeberg [K]<br>G. mazanense v. ferox Backeberg nom. inval. [K]<br>G. nidulansFric ex Backeberg [K]<br>G. weissianumBackeberg [K]                                                                                                                                                                                                                                                                                                                                 |
| G. ritterianum ssp. acentracanthumF. Berger                   | La Rioja-Argentina                                            |                                                                                                       | G. ritterianumRausch                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. weissianumBackeberg                                        | La Rioja-Argentina                                            | G. polycephalumPiltz nom. nud.<br>G. mazanense v. polycephalumPiltz nom. nud.                         | G. hossei F. Haage                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. weissianum v. atroseumBackeberg                            | La Rioja-Argentina                                            | G. mazanense v. roseiflorum(Backeberg) H.Till nom. inval.                                             |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>-A-AI-d (H.Till) Series Mostiana-Aggregat Spegaziniana</b> |                                                               |                                                                                                       |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. bayrianum H.Till ex H.Till                                 | Salta- Argentina<br>Tucuman-Argentina<br>Catamarca- Argentina | G. spegazzinii ssp. bayrianum(H.Till) Halda<br>G. spegazzinii v. bayrianum(H.Till) Halda              | G. bayrianumH.Till                                   | G. bayrianum H.Till ex H.Till [H], [A], [K]<br>G. spegazziniiBritton & Rose [H], [A], [K]<br><b>Synonym</b><br>G. spegazzinii v. majorBackeberg [K]<br>G. spegazzinii v. punillenseH.Till & W.Till [K]                                                                                                                                                                                                                                                                                                                                                                      |
| G. cardenasianum F. Ritter                                    | Tarija- Bolivia                                               | G. spegazzinii ssp. cardenasianum(Ritter) Kiesling & Metzng                                           | G. cardenasianumRitter                               | G. spegazzinii ssp. cardenasianum(Ritter) Kiesling & Metzng [H], [A]<br><b>Synonym</b><br>G. armatum Ritter [H], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| G. cardenasianum ssp. armatum(Ritter) H.Till ined.            | Tarija- Bolivia                                               | G. armatum Ritter<br>G. cardenasianum v. armatum(Ritter) Slaba et Sorna                               | G. cardenasianumRitter                               | G. glaucum [H]<br>G. glaucum ssp. ferrari [H]<br>G. mucidum Oehme sensu Piltz, Metzng & Schweitzer [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| G. catamarcense H.Till & W.Till                               | Catamarca-Argentina                                           | G. hybopleurum(Schumann) Backeberg , p.p<br>G. pugionacanthumBackeberg , p.p                          | G. pugionacanthumBackeberg                           | <b>Synonym</b><br>G. ferrarii Rausch [A], [K]<br>G. glaucum Ritter [A], [K]<br>G. hybopleurum(Schumann) Backeberg [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| G. catamarcense f. belense H.Till & W.Till                    | Catamarca-Argentina                                           |                                                                                                       | G. pugionacanthumBackeberg                           | <b>Synonym</b> The opinion of E.Anderson and R.Kiesling is different.<br>G. nigriareolatumBackeberg [A]<br>G. nigriareolatum v. densispinumBackeberg ex H.Till [A]<br>G. nigriareolatum v. simoiH. Till [A]                                                                                                                                                                                                                                                                                                                                                                 |
| G. catamarcense f. ensispinumH.Till & W.Till                  | Catamarca-Argentina                                           |                                                                                                       | G. pugionacanthumBackeberg                           | G. ambatoense Piltz [K]<br>G. castellanosii ssp. ferocior(Till & Amerhauseri) G. Charles [K]<br>G. catamarcense H.Till & W.Till, p.p [K]<br>G. catamarcense ssp. acinacispinumH.Till & W.Till [K]<br>G. catamarcense ssp. schmidianumH.Till & W.Till [K]<br>G. hybopleurum v. breviflorumBackeberg nom. inval. [K]<br>G. hybopleurum v. centrispinumBackeberg nom. inval. [K]<br>G. hybopleurum v. euchlorum nom. nud.[K]<br>G. hybopleurum v. feroxBackeberg nom. inval.[K]<br>G. mostii ssp. ferocior(Backebg.) H.Till & Amerhauser [K]<br>G. nigriareolatumBackeberg [K] |
| G. catamarcense ssp. acinacispinumH.Till & W.Till             | Catamarca-Argentina                                           |                                                                                                       | G. pugionacanthumBackeberg                           | <b>G. pugionacanthumBackeberg</b> [H], [K]<br>Formerly regarded as a form of the uncertain G.hybopleurum but now thought to be an old name for G.catamarcense Hunt(The New Cactus Lexicon)                                                                                                                                                                                                                                                                                                                                                                                  |
| G. catamarcense ssp. schmidianumH.Till & W.Till               | Catamarca-Argentina                                           | G. glaucumF.Ritter ssp. albertovoitchii.J. Halda & I. Milt                                            | G. pugionacanthumBackeberg                           | <b>Synonym</b><br>G. catamarcense H.Till & W.Till [H]<br>G. catamarcense H.Till & W.Till, p.p [K]<br>G. catamarcense f. belenseH.Till & W.Till [H], [K]<br>G. catamarcense f. ensispinumH.Till & W.Till [H], [K]<br>G. catamarcense f. montanumH.Till & W.Till [H], [K]<br>G. hybopleurum(Schumann) Backeberg [H]<br>G. pugionacanthumBackeberg ex H.Till (sensu Till) [A]<br>G. catamarcense ssp. catamarcense H.Till & W.Till [A]<br>G. catamarcense ssp. acinacispinumH.Till & W.Till [A]<br>G. catamarcense ssp. schmidianumH.Till & W.Till [A]                         |
| G. glaucum F.Ritter                                           | La Rioja-Argentina                                            | G. mucidumOehme sensu Piltz, Metzng & Schweitzer                                                      | G. glaucumF.Ritter                                   | < G. rhodantherum(Boedeker) Backeberg ; Doubtful Taxon [K] ><br>< G. guanchinense Schütz ; Doubtful Taxon [K] >                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii Britton & Rose                                 | Salta- Argentina<br>Tucuman-Argentina<br>Catamarca- Argentina | G. loricatum(Speg.) Speg. nom. illeg.                                                                 | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii ssp. sarkaeHalda & Milt                        | Salta- Argentina                                              | G. spegazzinii Britton & Rose                                                                         | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii f. unguispinumSlaba                            | Salta- Argentina                                              | G. spegazzinii Britton & Rose                                                                         | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii v. horizontalonium(Fric) Valnicek              | Salta- Argentina                                              | G. spegazzinii Britton & Rose                                                                         | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii v. majorBackeberg                              | Salta- Argentina                                              | G. spegazzinii v. cashenseBackeberg & Knuth nom. inval.                                               | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| G. spegazzinii v. punillenseH.Till & W.Till                   | Salta- Argentina<br>Tucuman-Argentina                         |                                                                                                       | G. spegazzinii Britton & Rose                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                               |                                                               |                                                                                                       |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**Literature**

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This table is designed by Takashi Shimada

**Table 7 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About Monvilleiana, Saglioni Group(Aggregat) )**

| Classification of Genus <i>Gymnocalycium</i> by AGG and others                                    | Habitat                                                                                                                     | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                                                                                                                                                                                   | Synonym of rough classification by Mr. Graham Chares                                   | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling > |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| -A-A1-e (H.Till) Series <i>Saglioni</i> ana-Aggregat <i>Monvilleiana</i>                          |                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Subgenus <i>Microsemineum</i>                                                          | <b>G. monvillei (Lemaire) Britton &amp; Rose</b> [H], [A], [K]                                                               |
| <i>G. brachyanthum</i> (Gürke) Britton & Rose                                                     | Cordoba-Argentina                                                                                                           | <i>G. monvillei</i> v. <i>grandiflorum</i> (Backeberg) <i>H.Till</i><br><i>G. grandiflorum</i> <i>Backeberg</i>                                                                                                                                                                                                                                                                                                                                    | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <b>Synonym</b><br><i>G. brachyanthum</i> (Gürke) Britton & Rose [K]                                                          |
| <b><i>G. monvillei</i> (Lemaire) Pfeiff ex Britton &amp; Rose</b>                                 | Cordoba-Argentina                                                                                                           | <b><i>G. multiflorum</i> (Hooker) Britton &amp; Rose</b>                                                                                                                                                                                                                                                                                                                                                                                           | <b><i>G. monvillei</i> (Lemaire) Britton &amp; Rose</b>                                | <i>G. monvillei</i> v. <i>grandiflorum</i> (Backeberg) <i>H.Till</i> [K]                                                     |
| <i>G. monvillei</i> v. <i>safronovii</i> V.Gapon                                                  | Cordoba-Argentina                                                                                                           | <i>G. monvillei</i> v. <i>steinerii</i> (Backeberg) <i>H.Till</i> , p.p.                                                                                                                                                                                                                                                                                                                                                                           |                                                                                        | <i>G. monvillei</i> ssp. <i>brachyanthum</i> (Gürke) <i>H.Till</i> [H], [K]                                                  |
| <i>G. monvillei</i> v. <i>coloratum</i> <i>Neuhuber</i>                                           | Cordoba-Argentina                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <i>G. monvillei</i> ssp. <i>gertrudae</i> (Neuhuber) <i>Neuhuber</i> [H]                                                     |
| <i>G. monvillei</i> v. <i>steinerii</i> (Backeberg) <i>H.Till</i>                                 | Cordoba-Argentina                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <i>G. multiflorum</i> (Hooker) Britton & Rose [H], [A], [K]                                                                  |
| <b><i>G. monvillei</i> ssp. <i>achirasense</i> (H.Till &amp; Schatzl ex H.Till) <i>H.Till</i></b> | San Luis-Argentina                                                                                                          | <i>G. achirasense</i> <i>H.Till &amp; Schatzl ex H.Till</i><br><i>G. horridispinum</i> v. <i>achirasense</i> (Till & Schatzl) <i>Lodé</i>                                                                                                                                                                                                                                                                                                          | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <i>G. multiflorum</i> v. <i>albispinum</i> (K.Schumann) <i>Backeberg</i> [K]                                                 |
| <i>G. monvillei</i> ssp. <i>achirasense</i> f. <i>villmercedense</i> <i>H.Till &amp; Neuhuber</i> | San Luis-Argentina                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <i>G. multiflorum</i> v. <i>parisense</i> (K.Schumann) <i>Backeberg</i> [K]                                                  |
| <i>G. monvillei</i> ssp. <i>achirasense</i> v. <i>chacrasense</i> <i>Neuhuber</i>                 | San Luis-Argentina                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <i>G. schuetzianum</i> <i>H.Till &amp; Schatzl</i> [H], [K]                                                                  |
| <i>G. monvillei</i> ssp. <i>achirasense</i> v. <i>echinatum</i> <i>Neuhuber</i>                   | San Luis-Argentina                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <b><i>G. monvillei</i> ssp. <i>brachyanthum</i> (Gürke) <i>H.Till</i> [A]</b>                                                |
| <i>G. monvillei</i> ssp. <i>achirasense</i> v. <i>kainradiae</i> <i>Neuhuber</i>                  | San Luis-Argentina                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <b>Synonym</b><br><i>G. schuetzianum</i> <i>H.Till &amp; Schatzl</i> [A]                                                     |
| <i>G. monvillei</i> ssp. <i>achirasense</i> v. <i>orientale</i> <i>Neuhuber</i>                   | Cordoba-Argentina                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> ssp. <i>achirasense</i> (Till & Schatzl ex Till) <i>Chares</i> | <i>G. ouselianum</i> (Cels ex Salm-Dyck) Y.Ito nom. inval. [A]                                                               |
| <i>G. monvillei</i> ssp. <i>gertrudae</i> (Neuhuber) <i>Neuhuber</i>                              | San Luis-Argentina                                                                                                          | <i>G. monvillei</i> ssp. <i>brachyanthum</i> v. <i>gertrudae</i> <i>Neuhuber</i>                                                                                                                                                                                                                                                                                                                                                                   | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <b><i>G. monvillei</i> ssp. <i>achirasense</i> (H.Till &amp; Schatzl ex H.Till) <i>H.Till</i> [H], [A], [K]</b>              |
| <i>G. monvillei</i> ssp. <i>gertrudae</i> v. <i>confusa</i> <i>Neuhuber</i>                       | San Luis-Argentina                                                                                                          | <i>G. monvillei</i> ssp. <i>brachyanthum</i> (Gürke) <i>H.Till</i> sensu <i>H.Till &amp; Neuhuber</i>                                                                                                                                                                                                                                                                                                                                              | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <b>Synonym</b><br><i>G. achirasense</i> <i>H.Till &amp; Schatzl ex H.Till</i> [H] [A], [K]                                   |
| <i>G. monvillei</i> ssp. <i>horridispinum</i> (Frank ex H.Till) <i>H.Till</i>                     | Cordoba-Argentina<br>San Luis-Argentina                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. horridispinum</i> Frank ex Till                                                  | <i>G. horridispinum</i> var. <i>achirasense</i> (Till & Schatzl) <i>Lodé</i> [K]                                             |
| <i>G. schuetzianum</i> <i>H.Till &amp; Schatzl</i>                                                | Cordoba-Argentina                                                                                                           | <i>G. monvillei</i> ssp. <i>schuetzianum</i> <i>Neuhuber &amp; H.Till</i>                                                                                                                                                                                                                                                                                                                                                                          | <i>G. monvillei</i> (Lemaire) Britton & Rose                                           | <b><i>G. monvillei</i> ssp. <i>horridispinum</i> (Frank ex H.Till) <i>H.Till</i> [H], [A], [K]</b>                           |
| -A-A1-e (H.Till) Series <i>Saglioni</i> ana Aggregat- <i>Saglioni</i> a                           |                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Subgenus <i>Microsemineum</i>                                                          | <b>Synonym</b><br><i>G. horridispinum</i> Frank ex <i>H.Till</i> [H], [A], [K]                                               |
| <i>G. pflanzii</i> (Vaupel) Werdermann                                                            | Santa Cruz-Bolivia<br>Chuquisaca-Bolivia<br>Tarija-Bolivia<br>Cordillera-Bolivia<br>Tucuman-Argentina                       | <i>G. marquezii</i> <i>M.Cardenas</i>                                                                                                                                                                                                                                                                                                                                                                                                              | <i>G. pflanzii</i> (Vaupel) Werdermann                                                 | <b><i>G. saglionis</i> (Cels) Britton &amp; Rose</b> [H], [A], [K]                                                           |
| <i>G. pflanzii</i> v. <i>paraguayense</i> <i>H.Till &amp; Amerhauser</i>                          | Nueva Asuncion-Paraguay                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. pflanzii</i> (Vaupel) Werdermann                                                 | <b>Synonym</b><br><i>G. tilcarensis</i> (Backeberg) <i>Schutz</i> [H]                                                        |
| <i>G. pflanzii</i> v. <i>lagunillasense</i> (M.Cardenas) <i>Donaldo</i>                           | Cordillera-Bolivia<br>Tarija-Bolivia                                                                                        | <i>G. lagunillasense</i> <i>M.Cardenas</i><br><i>G. chuquisacanum</i> <i>M.Cardenas</i><br><i>G. izozogsii</i> <i>M.Cardenas</i><br><i>G. pflanzii</i> v. <i>izozogsii</i> f. <i>izozogsii</i> (M.Cardenas) <i>Donald</i><br><i>G. pflanzii</i> v. <i>izozogsii</i> f. <i>chuquisacanum</i> (M.Cardenas) <i>Donald</i>                                                                                                                             | <i>G. pflanzii</i> (Vaupel) Werdermann                                                 | <b><i>G. saglionis</i> v. <i>jujuysense</i> <i>Backeberg</i> [K]</b>                                                         |
| <i>G. pflanzii</i> ssp. <i>argentinense</i> <i>Till &amp; W. Till</i>                             | Salta-Argentina<br>Tucuman-Argentina<br>Catamarca-Argentina                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. pflanzii</i> ssp. <i>argentinense</i> <i>Till &amp; W. Till</i>                  | <b>Synonym</b><br><i>G. tilcarensis</i> (Backeberg) <i>Schutz</i> [K]                                                        |
| <i>G. pflanzii</i> ssp. <i>dorisiae</i> <i>Amerhauser</i>                                         | Tarija-Bolivia                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. pflanzii</i> (Vaupel) Werdermann                                                 | <i>G. saglionis</i> v. <i>tilcarensis</i> <i>Backeberg</i> nom. inval. [K]                                                   |
| <i>G. saglionis</i> (Cels) Britton & Rose                                                         | Jujuy-Argentina<br>Tucuman-Argentina<br>Salta-Argentina<br>Catamarca-Argentina<br>La Rioja-Argentina<br>San Juan- Argentina | <i>G. saglionis</i> v. <i>albispinum</i> <i>Ritter ex Backeberg</i> nom.nud.<br><i>G. saglionis</i> v. <i>flavispinum</i> <i>Ritter ex Backeberg</i> nom.nud.<br><i>G. saglionis</i> v. <i>longispinum</i> <i>Fric</i> nom.nud.<br><i>G. saglionis</i> v. <i>roseispinum</i> <i>Ritter ex Backeberg</i> nom.nud.<br><i>G. saglionis</i> v. <i>rubispinum</i> <i>Backeberg</i> nom.nud.<br><i>G. saglionis</i> v. <i>tucumanense</i> hort. nom.nud. | <i>G. saglionis</i> (Cels) Britton & Rose                                              | <i>G. saglionis</i> ssp. <i>tilcarensis</i> (Backeberg) <i>Till &amp; W.Till</i> [K]                                         |
| <i>G. saglionis</i> fa. <i>splendens</i> nom. nud.                                                | La Rioja-Argentina                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <i>G. saglionis</i> (Cels) Britton & Rose                                              | <b><i>G. saglionis</i> ssp. <i>tilcarensis</i> (Backeberg) <i>Till &amp; W.Till</i> [A]</b>                                  |
| <i>G. saglionis</i> ssp. <i>tilcarensis</i> (Backeberg) <i>Till &amp; W.Till</i>                  | Jujuy-Argentina                                                                                                             | <i>Brachycalycium</i> <i>tilcarensis</i> <i>Backeberg</i><br><i>G. tilcarensis</i> (Backeberg) <i>Schutz</i><br><i>G. saglionis</i> v. <i>jujuysense</i> <i>Backeberg</i><br><i>G. saglionis</i> v. <i>tilcarensis</i> <i>Backeberg</i> nom. inval.                                                                                                                                                                                                | <i>G. saglionis</i> (Cels) Britton & Rose                                              | <b>Synonym</b><br><i>G. millaresii</i> <i>M.Cardenas</i> [H], [A]                                                            |
| <i>G. zegarrae</i> <i>M.Cardenas</i>                                                              | Santa Cruz-Bolivia<br>Chuquisaca-Bolivia                                                                                    | <i>G. comarapense</i> <i>M.Cardenas</i> ex <i>Backeb.</i> nom.inval.<br><i>G. pflanzii</i> v. <i>albipulpa</i> <i>F.Ritter</i><br><i>G. pflanzii</i> v. <i>zegarrae</i> / <i>M.Cardenas</i> / <i>Donald</i><br><i>G. saglionis</i> v. <i>bolivianum</i> <i>M.Cardenas</i> nom. nud.                                                                                                                                                                | <i>G. pflanzii</i> ssp. <i>zegarrae</i> (M.Cardenas) <i>Chares</i>                     | <i>G. riograndense</i> <i>M.Cardenas</i> [A]                                                                                 |
| <i>G. zegarrae</i> v. <i>riograndense</i> (M.Cardenas) / <i>H.Till &amp; Amerhauser</i>           | Santa Cruz-Bolivia<br>Chuquisaca-Bolivia                                                                                    | <i>G. pflanzii</i> v. <i>riograndense</i> (M.Cardenas) <i>Donald</i><br><i>G. riograndense</i> <i>M.Cardenas</i>                                                                                                                                                                                                                                                                                                                                   | <i>G. pflanzii</i> ssp. <i>zegarrae</i> (M.Cardenas) <i>Chares</i>                     | <i>G. pflanzii</i> v. <i>albipulpa</i> <i>F.Ritter</i> [A]                                                                   |
| <i>G. zegarrae</i> ssp. <i>millaresii</i> (M.Cardenas) <i>H.Till &amp; W. Till</i>                | Potosi-Bolivia                                                                                                              | <i>G. millaresii</i> <i>M.Cardenas</i><br><i>G. pflanzii</i> v. <i>millaresii</i> (M.Cardenas) <i>Donald</i><br><i>G. sucrensis</i> nom. nud. <i>Richard</i><br><i>G. tominense</i> nom nud. <i>Richard</i><br><i>G. mistienis</i> nom. nud                                                                                                                                                                                                        | <i>G. pflanzii</i> ssp. <i>zegarrae</i> (M.Cardenas) <i>Chares</i>                     | <i>G. pflanzii</i> v. <i>riograndense</i> (M.Cardenas) <i>Donald</i> [A]                                                     |
|                                                                                                   |                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                        | <i>G. zegarrae</i> <i>M.Cardenas</i> [A]                                                                                     |

**literature**

The Magazine of *Gymnocalycium* By the Arbeitsgruppe *Gymnocalycium* (AGG) 1991-2009 David Hunt, Nigel Taylor ,Graham Charles, and their supported team The New Cactus Lexicon 2006 Editorial Committee E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinio: 2007 Web Page Graham Charles Gymnocalycium In Habitat and Culture 2009

**A Red character** : Texta that should be noted, especially.

**A blue character** : Texta that should be noted.

This table is designed by Takashi Shimada

Table 8 ; Comparison between detailed classification of Genus Gymnocalycium by AGG and other rough classifications (About Chiquitana, Chacoensia, Castellanosiana Group(Aggregat) )

| Classification of Genus Gymnocalycium by AGG and others           | Habitat                                  | Synonym<br>(depends on AGG etc.)                                                                   | Synonym of rough classification by Mr. Graham Chares | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling > |
|-------------------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| -A-A1-f (H.Till) Series Chiquitanae-Aggregat Chiquitana           |                                          |                                                                                                    | Subgenus Microsemineum                               | G. chiquitanum Cardenas [H], [A]                                                                                             |
| G. chiquitanum Cardenas                                           | Santa Cruz-Bolivia                       | G. hammerschmidii Backeberg nom. inval.                                                            | G. chiquitanum Cardenas                              | Synonym<br>G. hammerschmidiiBackeberg nom. inval. [H]                                                                        |
| G. chiquitanum v. hammerschmidii (Backeb.) H.Till                 | Santa Cruz-Bolivia                       | G. chiquitanum Cardenas                                                                            | G. chiquitanum Cardenas                              | G. chacoenseAmerhauser [H](not justified)<br>G. paediophilumRitter ex Schütz [H](not justified)                              |
| G. paediophilum Ritter ex Schütz                                  | Boqueron-Paraguay                        | G. paediophyllum Schütz                                                                            | G. paediophilumRitter ex Schütz                      | G. paediophyllum Schütz [A]                                                                                                  |
| -A-A1-g (H.Till) Series Chacoensiana Aggregat-Chacoensia          |                                          |                                                                                                    | Subgenus Microsemineum                               | G. castellanosii Backeberg [H], [A], [K]                                                                                     |
| G. chacoense Amerhauser                                           | Santa Cruz-Bolivia                       |                                                                                                    | G. chacoense Amerhauser                              | Synonym<br>G. acorrugatumLambert [A]<br>G. bozsingianumSchütz [A]<br>G. ferox(Backeberg) Slaba nom. inval. [A]               |
| -A-A4 (H.Till) Subsectio Castellanosiana Aggregat-Castellanosiana |                                          |                                                                                                    | Subgenus Microsemineum                               | G. castellanosii v. bozsingianum (Schütz) Piltz [K]                                                                          |
| G. acorrugatum J.Lambert                                          | San Juan-Argentina                       |                                                                                                    | G. rhodanthelum (Boedeker) Backeberg                 |                                                                                                                              |
| G. castellanosii Backeberg                                        | La Rioja-Argentina<br>San Juan-Argentina |                                                                                                    | G. castellanosii Backeberg                           | Synonym<br>G. bozsingianumSchütz [K]                                                                                         |
| G. castellanosii v. rigidum H.Till                                | La Rioja-Argentina                       |                                                                                                    | G. castellanosii Backeberg                           | G. castellanosii ssp. acorrugatum (Lambert) Kiesling & Metzging [H], [K]                                                     |
| G. castellanosii ssp. bozsingianum (Schutz) Amerhauser & H.Till   | La Rioja-Argentina<br>San Juan-Argentina | G. castellanosii v. bozsingianum(Schütz) Piltz<br>G. bozsingianumSchütz                            | G. castellanosii Backeberg                           | Synonym<br>G. acorrugatumLambert [H], [K]<br>G. castellanosii ssp. ferocior (Till & Amerhauseri) G. Charles [H]              |
| G. castellanosii ssp. bozsingianum v. armillatum J.Piltz          | La Rioja-Argentina                       | G. castellanosii v. armillatum Piltz                                                               | G. castellanosii Backeberg                           | Synonym<br>G. mostii ssp. ferocior(Backebg.) H.Till & Amerhauser [H]                                                         |
| G. coloradense F. Berger                                          | La Rioja-Argentina                       | G. hossei v. longispinum nom. nud.<br>G. hossei v. ferox nom. nud.<br>G.sp Sierra de los Colorados | G. rhodanthelum (Boedeker) Backeberg                 |                                                                                                                              |

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A Red character : Texa that should be noted, especially.

A blue character : Texa that should be noted.

This table is designed by Takashi Shimada

Table 9 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About *Uruguayensia*, *Multiflora*, *Horstiana* Group(Aggregat )

| Classification of Genus <i>Gymnocalycium</i> by AGG and others             | Habitat                                                                                                                         | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Synonym of rough classification by Mr. Graham Chares                             | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                 |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -A-A2 (H.Till) Series <i>Macroseminum</i> -Aggregat <i>Uruguayensia</i>    |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Subgenus <i>Macroseminum</i></b>                                              | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler [H], [A], [K]                                                                                                                                                                                                                          |
| <i>G. artigas</i> Herter                                                   | Artigas-Uruguay<br>Rio Grande do Sul-Brazil                                                                                     | <i>G. uruguayense</i> (Arechavaleta) Britton & Rose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli | <b>Synonym</b><br><i>G. megalothelos</i> (Sencke ex K.Schumann) Britton & Rose : A name of doubtful application best rejected [H]                                                                                                                                                            |
| <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                      | Rio Grande do Sul-Brazil                                                                                                        | <i>G. denudatum</i> v. <i>octogonum</i> (K.Schum.) Y.Itō nom. inval.<br><i>G. denudatum</i> v. <i>durispinum</i> nom. nud.<br><i>G. denudatum</i> v. <i>grandiflorum</i> nom. nud.<br><i>G. denudatum</i> v. <i>multiflorum</i> nom. nud.<br><i>G. denudatum</i> v. <i>nigrispinus</i> nom. nud.<br><i>G. denudatum</i> v. <i>boliviensis</i> nom. nud.<br><i>G. denudatum</i> v. <i>flavispinum</i> (Schelle) Y.Itō nom. inval.<br><i>G. denudatum</i> v. <i>backebergii</i> Pazout nom. inval.<br><i>G. denudatum</i> v. <i>argentiniense</i> F. Haage ? | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <i>G. angelae</i> Meregalli [K], [A]                                                                                                                                                                                                                                                         |
| <i>G. denudatum</i> v. <i>roseiflorum</i> (Hildmann) Borg                  | Rio Grande do Sul-Brazil                                                                                                        | <i>G. denudatum</i> v. <i>roseiflorum</i> (K.Schum.) Y.Itō nom. inval.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <i>G. rauschii</i> H.Till & W.Till [A]<br>Doubtful Taxon [K]                                                                                                                                                                                                                                 |
| <i>G. denudatum</i> ssp. <i>angelae</i> (Meregalli) Prestle                | Corrientes-Argentina                                                                                                            | <i>G. angelae</i> Meregalli                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <i>G. angelae</i> Meregalli                                                      | <i>G. netrelium</i> (Monville ex Labouret) Britton & Rose [A]<br>Doubtful Taxon [K]                                                                                                                                                                                                          |
| <i>G. denudatum</i> ssp. <i>angulatum</i> Prestle                          | Rio Grande do Sul-Brazil                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <i>G. uruguayense</i> (Arechavaleta) Britton & Rose [H], [A], [K]                                                                                                                                                                                                                            |
| <i>G. denudatum</i> ssp. <i>necopinum</i> Prestle                          | Rio Grande do Sul-Brazil                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <b>Synonym</b><br><i>G. artigas</i> Herter [A], [K]<br><i>G. guerneanum</i> (Haage) Britton & Rose [H], [A], [K]<br><i>G. melanocarpum</i> (Arechavaleta) Britton & Rose [H], [A]<br><i>G. netrelium</i> (Monville ex Labouret) Britton & Rose [H]<br><i>G. rauschii</i> H.Till & W.Till [H] |
| <i>G. guerneanum</i> (Haage) Britton & Rose                                |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli |                                                                                                                                                                                                                                                                                              |
| <i>G. leeanum</i> (Hooker) Britton & Rose sensu Backeberg                  | Canelones-Uruguay<br>Cerro Largo-Uruguay<br>Florida-Uruguay<br>Lavalleja-Uruguay<br>Maldonado-Uruguay<br>Treinta y Tres-Uruguay | <i>Echinocactus leeanus</i> Hooker sensu K.Schumann<br><i>Echinocactus hyptiacanthus</i> Lemaire sensu Schlosser & Schütz<br><i>G. hyptiacanthum</i> (Lem.) Britton & Rose<br><i>G. uruguayense</i> v. <i>leeanum</i> (Hooker) Prestle nom. nud.<br><i>G. netrelium</i> (Monville ex Labouret) Britton & Rose, p.p.<br><i>G. uruguayense</i> (Arechavaleta) Britton & Rose, p.p.                                                                                                                                                                           | <i>G. hyptiacanthum</i> (Lem.) Britton & Rose                                    | <i>G. hyptiacanthum</i> (Lem.) Britton & Rose sensu Backeberg [K], [A]<br><i>G. hyptiacanthum</i> ; Another untypifiable name of disputed application, best abandoned. The unsupported neotype proposed by Kiesling [H]                                                                      |
| <i>G. leeanum</i> v. <i>brevispinum</i> Backeberg                          |                                                                                                                                 | <i>G. uruguayense</i> (Arechavaleta) Britton & Rose                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                  | <i>G. leeanum</i> (Hooker) Britton & Rose [A]                                                                                                                                                                                                                                                |
| <i>G. megalothelon</i> (Sencke ex K.Schumann) Britton & Rose sensu H.Till  | Rio Grande do Sul-Brazil                                                                                                        | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler s.l<br><i>G. denudatum</i> v. <i>paraguayense</i> F. Haage ex Y.Itō. nom. inval.                                                                                                                                                                                                                                                                                                                                                                                                                     | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <i>G. leeanum</i> (Hooker) Britton & Rose ; A plant (Series <i>Gymnocalycium</i> Aggregat Reducta) from Argentina and Synonym of <i>G. reductum</i> ssp. <i>leeanum</i> (Hooker) Papsh [H]<br>Doubtful Taxon [K]                                                                             |
| <i>G. megalothelon</i> v. <i>susannae</i> H.Till                           | Artigas-Uruguay                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <i>G. reductum</i> ssp. <i>leeanum</i> (Hooker) Papsh [H]                                                                                                                                                                                                                                    |
| <i>G. megalothelon</i> ssp. <i>presteianum</i> H.Till                      | Rio Grande do Sul-Brazil                                                                                                        | <i>G. neobuenekeri</i> Prestle nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <i>G. denudatum</i> (Link & Otto) Pfeiffer ex Mittler                            | <b>Synonym</b><br><i>G. schatzlium</i> Strigl & W.Till [H]                                                                                                                                                                                                                                   |
| <i>G. melanocarpum</i> (Arechavaleta) Britton & Rose                       | Paysandu-Uruguay<br>Rio Negro-Uruguay                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli | <i>G. megalothelon</i> (Sencke ex K.Schumann) Britton & Rose [A]                                                                                                                                                                                                                             |
| <i>G. netrelium</i> (Monville ex Labouret) Britton & Rose                  | Cerro Largo-Uruguay<br>Lavalleja-Uruguay<br>Maldonado-Uruguay<br>Treinta y Tres-Uruguay                                         | <i>G. leeanum</i> v. <i>netrelium</i> (Monville ex Weber) Backeberg<br><i>G. leeanum</i> (Hooker) Britton & Rose, p.p. sensu Backeberg<br><i>G. uruguayense</i> (Arechavaleta) Britton & Rose, p.p.                                                                                                                                                                                                                                                                                                                                                        | <i>G. hyptiacanthum</i> ssp. <i>netrelium</i> (Arechavaleta) Meregalli           | <b>Synonym</b><br><i>G. monvillei</i> (Lemaire) Britton & Rose ? [A]                                                                                                                                                                                                                         |
| <i>G. rauschii</i> H.Till & W.Till                                         | Tacuarembó-Uruguay                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Names of Uncertain Application                                                   | <i>G. mesopotamicum</i> Kiesling [H], [A], [K]                                                                                                                                                                                                                                               |
| <i>G. uruguayense</i> (Arechavaleta) Britton & Rose                        | Artigas-Uruguay<br>Lavalleja-Uruguay<br>Lio<br>Rio Grande do Sul-Brazil<br>Rivera-Uruguay<br>Tacuarembó-Uruguay                 | <i>G. artigas</i> Herter<br><i>G. guerneanum</i> (Haage) Britton & Rose<br><i>G. leeanum</i> v. <i>brevispinum</i> Backeberg<br><i>G. hyptiacanthum</i> (Lem.) Britton & Rose sensu Backeberg<br><i>G. hyptiacanthum</i> v. <i>citriflorum</i> Fric nom. nud.<br><i>G. leeanum</i> (Hooker) Britton & Rose sensu Backeberg<br><i>G. netrelium</i> (Monville ex Labouret) Britton & Rose<br><i>G. uruguayense</i> f. <i>depressum</i> (Osten) Osten                                                                                                         | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli | <b>Synonym</b><br><i>G. angelae</i> Meregalli [H]                                                                                                                                                                                                                                            |
| <i>G. uruguayense</i> f. <i>depressum</i> (Osten) Osten                    |                                                                                                                                 | <i>Echinocactus uruguayensis</i> f. <i>depressa</i> Osten                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli | <i>G. monvillei</i> (Lemaire) Britton & Rose [H], [A], [K]                                                                                                                                                                                                                                   |
| <i>G. uruguayense</i> v. <i>roseiflorum</i> Y.Itō                          | Artigas-Uruguay                                                                                                                 | <i>G. leeanum</i> v. <i>roseiflorum</i> Y.Itō                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <i>G. hyptiacanthum</i> ssp. <i>uruguayense</i> (Monville ex Labouret) Meregalli | <b>Synonym</b><br><i>G. ourselianum</i> (Cels ex Salm-Dyck) Y.Itō nom. inval. [A]                                                                                                                                                                                                            |
| -A-A2 (H.Till) Series <i>Macroseminum</i> Aggregat-Multiflora              |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Subgenus <i>Macroseminum</i></b>                                              |                                                                                                                                                                                                                                                                                              |
| <i>G. fleischerianum</i> (Meregalli, Metzger, & Kiesling) Vala Ladislav    | Cordillera-Paraguay<br>Paraguay-Paraguay                                                                                        | <i>G. fleischerianum</i> Backeberg nom. inval.<br><i>G. paraguayense</i> f. <i>fleischerianum</i> Meregalli, Metzger, & R.Kiesling                                                                                                                                                                                                                                                                                                                                                                                                                         | <i>G. paraguayense</i> (Schumann) Hosseus                                        | <b>Synonym</b><br><i>G. ourselianum</i> (Cels ex Salm-Dyck) Y.Itō nom. inval. [A]                                                                                                                                                                                                            |
| <i>G. mesopotamicum</i> Kiesling                                           | Corrientes-Argentina                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. mesopotamicum</i> Kiesling                                                 | <i>G. paraguayense</i> (Schumann) Hosseus [H], [A], [K]                                                                                                                                                                                                                                      |
| <i>G. multiflorum</i> (Hooker) Britton & Rose sensu H.Till                 | Corrientes-Argentina?<br>paraguay?                                                                                              | <i>E. multiflorus</i> Hook<br><i>G. multiflorum</i> v. <i>albispinum</i> (K.Schum.) Backeberg<br><i>G. multiflorum</i> v. <i>parisense</i> (K.Schum.) Backeberg<br><i>G. oehmeianum</i> nom. nud.                                                                                                                                                                                                                                                                                                                                                          | Names of Uncertain Application                                                   | <b>Synonym</b><br><i>G. paraguayense</i> f. <i>fleischerianum</i> Meregalli, Metzger, & R.Kiesling [H]                                                                                                                                                                                       |
| <i>G. multiflorum</i> v. <i>ourselianum</i> Cels ex H.Till & W.Till        | Corrientes-Argentina                                                                                                            | <i>G. ourselianum</i> (Cels ex Salm-Dyck) Y.Itō nom. inval.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Names of Uncertain Application                                                   | <i>G. paraguayense</i> f. <i>fleischerianum</i> Meregalli, Metzger, & R.Kiesling [K]                                                                                                                                                                                                         |
| <i>G. paraguayense</i> (Schumann) Hosseus                                  | Cordillera-Paraguay<br>Paraguay-Paraguay<br>Nueva Asuncion-Paraguay                                                             | <i>E. multiflorus</i> v. <i>hybopleurus</i> K.Schumann<br><i>G. denudatum</i> v. <i>paraguayense</i> F. Haage<br><i>G. megalothelon</i> (Sencke ex K.Schumann) Britton & Rose From Paraguay ?                                                                                                                                                                                                                                                                                                                                                              | <i>G. paraguayense</i> (Schumann) Hosseus                                        | <i>G. horstii</i> Buining [H], [A], [K]                                                                                                                                                                                                                                                      |
| <i>G. paraguayense</i> v. <i>scheiderianum</i> (F. Haage) Schütz           | paraguay                                                                                                                        | <i>G. scheiderianum</i> nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                  | <i>G. horstii</i> ssp. <i>buenekeri</i> (Buining) Swales [H]                                                                                                                                                                                                                                 |
| <i>G. paraguayense</i> v. <i>wagnerianum</i> (F. Haage) Schütz             | paraguay                                                                                                                        | <i>G. denudatum</i> v. <i>wagnerianum</i> (F. Haage) Y.Itō nom. inval.<br><i>G. wagnerianum</i> nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                  | <b>Synonym</b><br><i>G. buenekeri</i> (Buining) Swales [H]                                                                                                                                                                                                                                   |
| <i>G. paraguayense</i> v. <i>wieditzianum</i> (F. Haage) Schütz            | paraguay                                                                                                                        | <i>G. denudatum</i> v. <i>wieditzianum</i> (Haage jun.) Y.Itō nom. inval.<br><i>G. wieditzianum</i> nom. nud.                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                  | <i>G. buenekeri</i> (Buining) Swales [A], [K]                                                                                                                                                                                                                                                |
| <i>G. heuschkelianum</i> nom. nud.                                         | paraguay?                                                                                                                       | <i>G. denudatum</i> v. <i>heuschkelianum</i> (F. Haage) Y.Itō nom. inval.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                  | <b>Synonym</b><br><i>G. horstii</i> v. <i>buenekeri</i> Buining nom. inval. [A], [K]                                                                                                                                                                                                         |
| <i>G. megalothelon</i> (Sencke ex K.Schumann) Britton & Rose From Paraguay | paraguay                                                                                                                        | <i>G. paraguayense</i> (Schumann) Hosseus ?<br><i>G. megalothelos</i> v. <i>delatianum</i> (F. Haage) Schütz ?                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                                                                                                                                                                                                                                              |
| -A-A2 (H.Till) Series <i>Macroseminum</i> Aggregat Horstiana               |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                  |                                                                                                                                                                                                                                                                                              |
| <i>G. buenekeri</i> (Buining) Swales                                       | Rio Grande do Sul-Brazil                                                                                                        | <i>G. horstii</i> v. <i>buenekeri</i> Buining nom. inval.<br><i>G. buiningii</i> nom. nud.<br><i>G. pentacanthum</i> nom. nud.<br><i>G. denudatum</i> v. <i>pentacanthum</i> nom. nud.                                                                                                                                                                                                                                                                                                                                                                     | <i>G. horstii</i> ssp. <i>buenekeri</i> (Swales) Brawn & Hofacker                |                                                                                                                                                                                                                                                                                              |
| <i>G. horstii</i> Buining                                                  | Rio Grande do Sul-Brazil                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. horstii</i> Buining                                                        |                                                                                                                                                                                                                                                                                              |
| <i>G. horstii</i> ssp. <i>megalanthum</i> Amerhauser                       | Rio Grande do Sul-Brazil                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <i>G. horstii</i> Buining                                                        |                                                                                                                                                                                                                                                                                              |

**literature**

The Magazine of *Gymnocalycium* By the Arbeitsgruppe *Gymnocalycium* (AGG) 1991-2005 David Hunt, Nigel Taylor ,Graham Charles, and their supported team: The New Cactus Lexicon 2006 Editorial Committee  
E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinic 2007 Web Page  
Graham Charles *Gymnocalycium* In Habitat and Culture 2005

A Red character : Text that should be noted, especially.  
A blue character : Text that should be noted.

This table is designed by Takashi Shimada



**Table 10 ; Comparison between detailed classification of Genus Gymnocalycium by AGG  
and other rough classifications (About Pileisperma Group(Aggregat) )**

| Classification of Genus Gymnocalycium by AGG and others                                      | Habitat                                                         | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                    | Synonym of rough classification by Mr. Graham Chares               | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -A-A3(H.Till) Subsectio Pileisperma Aggregat-Pileisperma                                     |                                                                 |                                                                                                                                                                                                                                     | Subgenus Tricomosemium                                             | <b>G. bodenbenderianum</b> ( <i>Hosseus ex Berger</i> ) A.W. Hill [H], [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>G. bodenbenderianum</b> ( <i>Hosseus ex Berger</i> ) A.W. Hill                            | La Rioja(Sierra de Ulapes)<br>-Argentina                        | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill sensu stricto                                                                                                                                                             | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          | <b>Synonym</b><br>G. riojense <i>Fric ex H.Till &amp; W.Till</i> [H]<br>G. platygonomum <i>Schütz</i> nom. nud. [H]<br>G. piltziorum <i>Schütz</i> [H]<br>G. intertextum <i>Backeberg ex H.Till</i> [A]<br>G. bodenbenderianum ssp. intertextum( <i>Backeberg ex H.Till</i> ) H.Till [A]<br>G. moserianum <i>Schütz</i> [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>G. bodenbenderianum ssp. intertextum</b> ( <i>Backeberg ex H.Till</i> ) H.Till            | Cordoba-Argentina                                               | G. intertextum <i>Backeberg ex H. Till</i>                                                                                                                                                                                          | G. ochoterenae <i>Backeberg</i>                                    | <b>G. ochoterenae</b> <i>Backeberg</i> [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>G. bodenbenderianum ssp. intertextum f. moserianum</b> Lambert                            | Cordoba-Argentina                                               | G. moserianum <i>Schutz</i>                                                                                                                                                                                                         | G. ochoterenae <i>Backeberg</i>                                    | <b>Synonym</b><br>G. ochoterenae v. cinereum <i>Backeberg</i> [A], [K]<br>G. ochoterenae v. polygonum <i>Backeberg</i> nom. inval. [K]<br>G. ochoterenae v. scoparium <i>H.Till &amp; Neuhauber</i> [K]<br>G. ochoterenae v. tenuispinum <i>Backeberg</i> nom. inval. [K]<br>G. ochoterenae v. variispinum <i>Backeberg</i> nom. inval. [K]<br>G. ochoterenae ssp. vatteri( <i>Buining</i> ) <i>Papsch</i> [H]<br>G. ochoterenae ssp. herbsthoferianum <i>H.Till &amp; Neuhauber</i> [H], [K]<br>G. intertextum <i>Backeberg ex H. Till</i> [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| G. bodenbenderianum ssp. intertextum v. intermedium nom.nud.                                 | Cordoba-Argentina                                               | G. intermedium <i>Pilz</i> nom. nud.                                                                                                                                                                                                | G. ochoterenae <i>Backeberg</i>                                    | <b>G. ochoterenae</b> <i>Backeberg</i> [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>G. occultum</b> ( <i>Fric ex Till &amp; W. Till</i> ) H.Till                              | Catamarca-Argentina                                             | G. stellatum ssp. occultum <i>Fric ex Till &amp; W. Till</i>                                                                                                                                                                        | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          | <b>Synonym</b><br>G. vatteri <i>Buining</i> [A], [K]<br>G. ochoterenae ssp. vatteri v. altautinense <i>Papsch</i> [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>G. ochoterenae</b> <i>Backeberg</i>                                                       | San Luis-Argentina                                              | G. ochoterenae v. cinereum <i>Backeberg</i><br>G. ochoterenae v. polygonum <i>Backeberg</i> nom. inval.<br>G. ochoterenae v. tenuispinum <i>Backeberg</i> nom. inval.<br>G. ochoterenae v. variispinum <i>Backeberg</i> nom. inval. | G. ochoterenae <i>Backeberg</i>                                    | <b>G. ragonesei</b> <i>Castellanos</i> [H], [A], [K]<br><b>G. stellatum</b> <i>Spegazzini</i> [H], [A], [K]<br><b>Synonym</b><br>G. asterium Y.Ito nom. illeg. [H], [A], [K]<br>G. obductum <i>Pilz</i> [H]<br>G. stellatum ssp. occultum <i>Fric ex Till &amp; W. Till</i> [H] [K]<br>G. asterium v. paucispinum <i>Backeberg</i> nom. inval. [K]<br>G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill [K]<br>G. occultum <i>Fric ex Schütz</i> [K]<br>G. piltziorum <i>Schütz</i> [K]<br>G. platygonomum <i>Schütz</i> nom. nud. [K]<br>G. quehlianum v. stellatum <i>Dölz</i> [K]<br>G. riojense <i>Fric ex H.Till &amp; W.Till</i> [K]<br>G. riojense v. guthianum <i>H.Till &amp; W.Till</i> [K]<br>G. riojense v. pipanacoense <i>H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. piltziorum <i>Schütz ex H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. kozelskianum v. sanjuanense <i>H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. kozelskianum v. mirandaense <i>H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. kozelskianum v. sanjuanense <i>H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. paucispinum <i>Backbg. ex H.Till &amp; W.Till</i> [K]<br>G. riojense ssp. paucispinum v. platygonomum <i>Schütz ex H.Till &amp; W.Till</i> [K]<br>G. triacanthum <i>Backeberg</i> nom. inval. [K]<br>Dr. Kiesling is still insisting on G. stellatum=G. bodenbenderianum=G. riojense |
| <b>G. ochoterenae v. scoparium</b> <i>H.Till &amp; Neuhauber</i>                             | San Luis-Argentina                                              |                                                                                                                                                                                                                                     | G. ochoterenae <i>Backeberg</i>                                    | <b>G. obductum</b> <i>Pilz</i> [A]<br><b>G. stellatum ssp. occultum</b> <i>Fric ex Till &amp; W. Till</i> [A]<br><b>G. riojense</b> <i>Fric ex H.Till &amp; W.Till</i> [A]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>G. ochoterenae ssp. herbsthoferianum</b> <i>H.Till &amp; Neuhauber</i>                    | San Luis-Argentina                                              |                                                                                                                                                                                                                                     | G. ochoterenae <i>Backeberg</i>                                    | <b>Synonym</b><br>G. triacanthum <i>Backeberg</i> nom. inval. [A]<br><b>G. riojense ssp. kozelskianum</b> <i>Schütz ex H.Till &amp; W.Till</i> [A]<br><b>G. riojense ssp. piltziorum</b> <i>Schütz ex H.Till &amp; W.Till</i> [A]<br><b>G. riojense ssp. paucispinum</b> <i>Backeberg ex H.Till &amp; W.Till</i> [A]<br><b>G. riojense ssp. platygonomum</b> ( <i>Schuetz ex H.Till &amp; W.Till</i> ) <i>H.Till</i> [A]<br><b>G. robustum</b> <i>R.Kiesling, Ferrari &amp; Metzger</i> [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>G. ochoterenae ssp. vatteri</b> ( <i>Buining</i> ) <i>W.Papsch</i>                        | Cordoba-Argentina                                               | G. vatteri <i>Buining</i>                                                                                                                                                                                                           | G. ochoterenae <i>Backeberg</i>                                    | <b>Synonym</b><br>G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i><br><b>G. riojense ssp. kozelskianum</b> <i>Schütz ex H.Till &amp; W.Till</i> [A]<br><b>G. riojense ssp. piltziorum</b> <i>Schütz ex H.Till &amp; W.Till</i> [A]<br><b>G. riojense ssp. paucispinum</b> <i>Backberg ex H.Till &amp; W.Till</i> [K]<br><b>G. riojense ssp. platygonomum</b> ( <i>Schuetz ex H.Till &amp; W.Till</i> ) <i>H.Till</i> [A]<br><b>G. robustum</b> <i>R.Kiesling, Ferrari &amp; Metzger</i> [H], [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>G. ochoterenae ssp. vatteri v. altautinense</b> <i>W.Papsch</i>                           | Cordoba-Argentina                                               |                                                                                                                                                                                                                                     | G. ochoterenae <i>Backeberg</i>                                    | <b>Synonym</b><br>E. quehlianum <i>F. Haage ex Quehl</i> [K]<br>G. quehlianum v. albispinus <i>Backeberg</i> nom. inval. [K]<br>G. stellatum v. flavispinum <i>Bozsing ex H. Till &amp; W. Till</i> [K]<br>G. stellatum v. zantnerianum ( <i>Schick</i> ) <i>H. Till &amp; W. Till</i> [K]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>G. paucispinum</b> ( <i>Backbg. ex H.Till &amp; W.Till</i> ) <i>H.Till</i>                | La Rioja-Argentina<br>Catamarca-Argentina                       | G. asterium v. paucispinum <i>Backeberg</i> nom. inval.<br>G. stellatum v. paucispinum ( <i>Backeberg</i> ) <i>Strong</i> nom. inval.<br>G. riojense ssp. paucispinum <i>Backbg. ex H.Till &amp; W.Till</i>                         | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          | <b>G. quehlianum</b> and <b>G. stellatum</b> were confused for a long time. We adopt G.robustum for the Ovatisemineum's species and stellatum for the Trichomosemium's species [H]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>G. ragonesei</b> <i>Castellanos</i>                                                       | Cordoba-Argentina<br>Catamarca-Argentina                        |                                                                                                                                                                                                                                     | G. ragonesei <i>Castellanos</i>                                    | <b>A Red character</b> : Texta that should be noted, especially.<br><b>A blue character</b> : Texta that should be noted.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>G. riojense</b> <i>Fric ex H.Till &amp; W.Till</i>                                        | La Rioja-Argentina<br>Catamarca-Argentina<br>San Juan-Argentina | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill sensu lato                                                                                                                                                                | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          | <b>This table is designed by Takashi Shimada</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>G. riojense v. pipanacoense</b> <i>H.Till &amp; W.Till</i>                                | Catamarca-Argentina<br>La Rioja-Argentina                       | G. bodenbenderianum v. pipanacoense ( <i>H.Till &amp; W.Till</i> ) <i>Pilz</i>                                                                                                                                                      | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. guasayanense</b> ( <i>Strigl</i> ) <i>H.Till</i>                         | Santiago de Este-Argentina<br>Catamarca-Argentina               | G. riojense ssp. paucispinum v. guasayanense <i>Strigl</i>                                                                                                                                                                          | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. kozelskianum</b> <i>Schuetz ex H.Till &amp; W.Till</i>                   | La Rioja-Argentina<br>San Juan-Argentina<br>Catamarca-Argentina | G. kozelskianum <i>Schütz</i> nom. inval.                                                                                                                                                                                           | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. kozelskianum v. mirandaense</b> <i>H.Till &amp; W.Till</i>               | La Rioja-Argentina<br>San Juan-Argentina                        | G. bodenbenderianum v. mirandaense ( <i>H.Till &amp; W.Till</i> ) <i>Pilz</i>                                                                                                                                                       | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. kozelskianum v. sanjuanense</b> <i>H.Till &amp; W.Till</i>               | San Juan-Argentina,<br>La Rioja-Argentina                       | G. bodenbenderianum v. sanjuanense nom. nud.                                                                                                                                                                                        | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. piltziorum</b> <i>Schuetz ex H.Till &amp; W.Till</i>                     | Catamarca-Argentina<br>La Rioja-Argentina                       | G. piltziorum <i>Schütz</i>                                                                                                                                                                                                         | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. piltziorum v. guthianum</b> ( <i>H.Till &amp; W.Till</i> ) <i>H.Till</i> | La Rioja-Argentina                                              | G. bodenbenderianum v. guthianum nom. nud.<br>G. riojense v. guthianum <i>H.Till &amp; W.Till</i>                                                                                                                                   | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. platygonomum</b> ( <i>Schuetz ex H.Till &amp; W.Till</i> ) <i>H.Till</i> | Catamarca-Argentina<br>La Rioja-Argentina                       | G. platygonomum <i>Schütz</i> nom. nud.<br>G. riojense ssp. paucispinum v. platygonomum <i>Schuetz ex H.Till &amp; W.Till</i>                                                                                                       | G. bodenbenderianum( <i>Hosseus ex Berger</i> ) A.W. Hill          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. riojense ssp. vertongenii</b> <i>Amerhauser</i>                                        | La Rioja-Argentina                                              |                                                                                                                                                                                                                                     |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. stellatum</b> <i>Spegazzini</i>                                                        | Cordoba-Argentina                                               | G.quehlianum v. stellatum <i>Dölz</i>                                                                                                                                                                                               | G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. stellatum v. flavispinum</b> <i>Bozsing ex H.Till &amp; W.Till</i>                     | Cordoba-Argentina                                               | G. quehlianum v. flavispinum <i>Bozsing ex Backeberg</i> nom. inval.<br>G. quehlianum v. albispinum <i>Bozsing ex Backeberg</i> nom. inval.                                                                                         | G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. stellatum v. kleinianum</b> <i>Rausch ex H.Till &amp; W.Till</i>                       | Cordoba-Argentina                                               | G. quehlianum v. kleinianum <i>Rausch</i> nom. nud.                                                                                                                                                                                 | G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. stellatum v. obductum</b> ( <i>Pilz</i> ) <i>H.Till &amp; W.Till</i>                   | Cordoba-Argentina<br>Catamarca-Argentina                        | G. obductum <i>Pilz</i>                                                                                                                                                                                                             | G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>G. stellatum v. zantnerianum</b> ( <i>Schick</i> ) <i>H.Till &amp; W.Till</i>             | Cordoba-Argentina                                               | G. quehlianum v. zantnerianum <i>Schick</i><br>G. quehlianum v. rolifianum <i>Schick</i>                                                                                                                                            | G. quehlianum ( <i>F.Haage ex Quehl</i> ) <i>Vaupel ex Hosseus</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                              |                                                                 |                                                                                                                                                                                                                                     |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinior 2007 Web Page  
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Table 11 ; Comparison between detailed classification of Genus Gymnocalycium by AGG and other rough classifications (About Terminalia Group(Aggregat) )

| Classification of Genus Gymnocalycium by AGG and others                          | Habitat                                                                | Synonym<br>(depends on AGG etc.)                                                                                                                                | Synonym of rough classification by Mr. Graham Chares                         | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                             |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -B-B1 (H.Till) Subsectio Terminalia-Aggregat Terminalia                          |                                                                        |                                                                                                                                                                 | Subgenus Muscosemineum                                                       | G. anisitsii ssp. damsii(Scumann) Chares [H]                                                                                                                                                                                                                                             |
| G. damsii (K.Schum) Britton & Rose                                               | Santa Cruz-Bolivia<br>Bahia Negra-Paraguay                             |                                                                                                                                                                 | G.anisitsii ssp. damsii(Scumann) Chares                                      | Synonym<br>G. anisitsii ssp. multiproliferum(P. J. Braun) P. J. Braun & Esteves [H]<br>G. damsii v. multiproliferumP.J. Braun [H]                                                                                                                                                        |
| G. damsii v. multiproliferumP.J. Braun                                           | Mato Grosso do Sul-Brazil                                              | G. anisitsii ssp. multiproliferum(P. J. Braun) P. J. Braun & Esteves                                                                                            | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. anisitsii (K. Schumann) Britton & Rose [H], [A]                                                                                                                                                                                                                                       |
| G. damsii ssp. evae Halda                                                        | Santa Cruz-Bolivia                                                     |                                                                                                                                                                 | G.anisitsii ssp. damsii(Scumann) Chares                                      | Synonym                                                                                                                                                                                                                                                                                  |
| G. damsii ssp. evae v. boosii Amerhauser                                         | Santa Cruz-Bolivia                                                     |                                                                                                                                                                 | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. damsii (K.Schumann) Britton & Rose [A]                                                                                                                                                                                                                                                |
| G. damsii subsp evae v. centrispinum Backeberg ex H.Till & Amerhauser            | Santa Cruz-Bolivia                                                     | G. damsii var. centrispinum Backeberg nom. inval.                                                                                                               | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. griseopalidumBackeberg [H], [A]                                                                                                                                                                                                                                                       |
| G. damsii subsp evae v. jossensianum(Boed) Britton & Rose ex H.Till & Amerhauser |                                                                        | G. joossensianum(Boed) Britton & Rose                                                                                                                           | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. joossensianum(Boedeker) Britton & Rose [A]                                                                                                                                                                                                                                            |
| G. damsii ssp evae v. rotundulum Backeberg ex H.Till & Amerhauser                | Santa Cruz-Bolivia                                                     | G. damsii v. rotundulum Backeberg nom. inval.                                                                                                                   | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. joossensianum= G. schickendantzii ssp. delaetii [H]                                                                                                                                                                                                                                   |
| G. damsii ssp. evae v. torulosum Backeberg                                       | Santa Cruz-Bolivia                                                     | G. damsii v. torulosum Backeberg nom. inval.                                                                                                                    | G.anisitsii ssp. damsii(Scumann) Chares                                      | G. anisitsii ssp. multiproliferum(P. J. Braun) P. J. Braun & Esteves [A]                                                                                                                                                                                                                 |
| G. eurypleurum Plesnik ex Ritter                                                 | Nueva Asuncion-Paraguay<br>Boqueron-Paraguay<br>Alto Paraguay-Paraguay |                                                                                                                                                                 | G. eurypleurumPlesnik ex Ritter                                              | Synonym<br>G. damsii v. multiproliferumP.J. Braun [A]                                                                                                                                                                                                                                    |
| G. friedrichii (Werderm.) Pazout ex Schütz                                       | Santa Cruz-Bolivia<br>Cordillera-Bolivia<br>Boqueron-Paraguay          | G. mihanovichii v. friedrichii Werdermann<br>G. mihanovichii v. melocactiformePazout<br>G. mihanovichii v. angustotrianumPazout                                 | G. stenopleurumF.Ritter                                                      | G. anisitsii ssp. mihanovichii? [H]<br>Synonym<br>G. mihanovichii(Fric ex Gurke) Britton & Rose [H]                                                                                                                                                                                      |
| G. friedrichii v. moserianum Pazout                                              | Nueva Asuncion-Paraguay<br>Boqueron-Paraguay<br>Alto Paraguay-Paraguay | G. mihanovichii v. friedrichii fa. nigrumY.Ito                                                                                                                  | G. stenopleurumF.Ritter                                                      | G. mihanovichii(Fric ex Gurke) Britton & Rose [A], [K]                                                                                                                                                                                                                                   |
| G. friedrichii v. albiflorum Pazout ex Schütz                                    | Tarija-Bolivia<br>Santa Cruz-Bolivia<br>Boqueron-Paraguay              | G. mihanovichii v. albiflorum Pazout<br>G. mihanovichii v. rysanekianumPazout<br>G. mihanovichii v. fleischerianumPazout<br>G. stenopleurumF.Ritter ?           | G. stenopleurumF.Ritter                                                      | G. stenopleurumF.Ritter [H], [A], [K]<br>Synonym<br>G. friedrichii (Werderm.) Pazout ex Schütz [H], [A], [K]<br>G. mihanovichii v. friedrichiiWerdermann [A], [K]                                                                                                                        |
| G. friedrichii v. piraitaense(Pazout)Pazout                                      |                                                                        | G. mihanovichii v. piraitaense Pazout<br>G. friedrichii v. pazoutianumMoser & Valnicek nom. illeg.<br>G. friedrichii v. piraretaense(Pazout) Pazout nom. inval. | G. stenopleurumF.Ritter                                                      | G. eurypleurum Plesnik ex Ritter [H], [A]                                                                                                                                                                                                                                                |
| G. friedrichii ssp. eytianum(Cardenas) H.Till & Amerhauser                       | Santa Cruz-Bolivia                                                     | G. eytianum Cardenas <sensu H.Till & Amerhauser>                                                                                                                | Names of Uncertain Application<br>(G. marsoneri ssp. megatae(Y.Ito) Chares ) | G. marsoneri ssp. matoense (Buining & Brederoo) P.J.Braun & Esteves [H], [A]<br>Synonym                                                                                                                                                                                                  |
| G. mihanovichii (Fric ex Gurke) Britton & Rose                                   | Alto Paraguay-Paraguay<br>Boqueron-Paraguay<br>Santa Cruz-Bolivia      |                                                                                                                                                                 | G. mihanovichii(Fric ex Gurke) Britton & Rose                                | G. eytianumCardenas [H]<br>G. fricianum Plenik [H]<br>G. hamatumF.Ritter [H], [A]<br>G. matoense Buining et Brederoo [H], [A]<br>G. megatae Y.Ito [H]<br>G. onychacanthumY. Ito [H]<br>G. pseudomalacocarpusBackeberg [H]<br>G. tortuga Blossfeld ex Backeberg [H]<br>G. tudaе Y.Ito [H] |
| G. mihanovichii v. stenogonum Fric & Pazout                                      | Chaco Austra-Argentina<br>Corrientes-Argentina                         | G. mihanovichii v. filadelfienseBackeberg<br>G. mihanovichii v. chloristicumF. Ritter                                                                           | G. mihanovichii(Fric ex Gurke) Britton & Rose                                |                                                                                                                                                                                                                                                                                          |
| G. stenopleurum F.Ritter                                                         | Boqueron-Paraguay<br>Nueva Asuncion-Paraguay                           | G. friedrichiii v. albiflorum Pazout ex Schütz, p.p                                                                                                             | G. stenopleurumF.Ritter                                                      |                                                                                                                                                                                                                                                                                          |
|                                                                                  |                                                                        |                                                                                                                                                                 |                                                                              |                                                                                                                                                                                                                                                                                          |

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A Red character : Texa that should be noted, especially.  
A blue character : Texa that should be noted.  
This table is designed by Takashi Shimada



Table 12 ; Comparison between detailed classification of Genus *Gymnocalycium* by AGG and other rough classifications (About *Schickendantziana*, *Periferalia* Group(Aggregat) )

| Classification of Genus <i>Gymnocalycium</i> by AGGand others                                 | Habitat                                                                                                                                            | Synonym<br>(depends on AGG etc.)                                                                                                                                                                                                                                                                                            | Synonym of rough classification by Mr. Graham Chares                           | Rough classification and Synonym By Dr. D.Hunt, Dr. E.Anderson and Dr.R.Kiesling<br>< [H] Hunt, [A] Anderson, [K] Kiesling >                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| -B-B2-h (H.Till) Series <i>Schickendantziana</i> -Aggregat <i>Schickendantziana</i>           |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                             | Subgenus <i>Muscosemineum</i>                                                  | <i>G. delaetii</i> (K.Schumann) A.V.Fric [A]                                                                                                                                                                                                                                                                                                                                                               |
| <i>G. delaetii</i> (K.Schumann) A.V.Fric                                                      | Salta-Argentina<br>Tucuman-Argentina<br>La Rioja-Argentina                                                                                         | <i>G. schickendantzii</i> var. <i>delaetii</i> (K.Schumann) Backeberg<br><i>G. lumberrasense</i> F.Ritter nom. inval.                                                                                                                                                                                                       | <i>G. schickendantzii</i> ssp. <i>delaetii</i> (K.Schumann) Chares             | Synonym<br><i>G. schickendantzii</i> v. <i>delaetii</i> (K.Schumann) Backeberg [A]                                                                                                                                                                                                                                                                                                                         |
|                                                                                               |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                             |                                                                                | <i>G. schickendantzii</i> v. <i>delaetii</i> (K.Schumann) Backeberg [K]                                                                                                                                                                                                                                                                                                                                    |
| <i>G. delaetii</i> f. <i>antherosacos</i> F.Ritter ex Neuherer                                | Salta-Argentina                                                                                                                                    | <i>G. antherosacos</i> F.Ritter nom. nud.                                                                                                                                                                                                                                                                                   | <i>G. schickendantzii</i> ssp. <i>delaetii</i> (K.Schumann) Chares             | Synonym<br><i>G. delaetii</i> (K.Schumann) A.V.Fric [K]                                                                                                                                                                                                                                                                                                                                                    |
| <i>G. delaetii</i> ssp. <i>marsoneri</i> (Fric ex Y.Ito) H.Till & Amerhauser                  | Salta-Argentina<br>Tucuman-Argentina<br>Chuquisaca-Bolivia<br>Nueva Asuncion-Paraguay                                                              | <i>G. marsoneri</i> Fric ex Y.Ito<br><i>G. tuda</i> v. <i>marsoneri</i> Piltz<br><i>G. knebelii</i> Fric nom. nud.<br><i>G. marsoneri</i> ssp. <i>matoense</i> (Buining & Brederoo) P.J.Braun & E.Esteves<br><i>G. anthrostele</i> F.Ritter                                                                                 | <i>G. marsoneri</i> Fric ex Y.Ito                                              | <i>G. schickendantzii</i> ssp. <i>delaetii</i> (K.Schumann) A.V.Fric [H]<br>Synonym<br><i>G. schickendantzii</i> v. <i>delaetii</i> (K.Schumann) Backeberg [H]<br><i>G. delaetii</i> (K.Schumann) A.V.Fric [H]<br><i>G. joossensianum</i> (Boedeker) Britton & Rose [H]                                                                                                                                    |
| <i>G. hamatum</i> F. Ritter                                                                   | Chuquisaca-Bolivia<br>Tarija-Bolivia                                                                                                               |                                                                                                                                                                                                                                                                                                                             | <i>G. marsoneri</i> ssp. <i>megatae</i> (Y.Ito) Chares                         | <i>G. marsoneri</i> Fric ex Y.Ito [H], [A], [K]                                                                                                                                                                                                                                                                                                                                                            |
| <i>G. itatiquense</i> H.Till & Amerhauser                                                     | Santa Cruz-Bolivia                                                                                                                                 | <i>G. eytianum</i> p.p. (non Cardenas)                                                                                                                                                                                                                                                                                      |                                                                                | Synonym<br><i>G. fricianum</i> Plenik [A]<br><i>G. knebelii</i> Fric nom. nud. [K]                                                                                                                                                                                                                                                                                                                         |
| <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                                        | Tucuman-Argentina<br>Salta-Argentina<br>Catamarca-Argentina<br>La Rioja-Argentina<br>San Juan-Argentina<br>Cordoba-Argentina<br>San Luis-Argentina | <i>G. michoga</i> Fric ex Y.Ito nom. illeg., p.p                                                                                                                                                                                                                                                                            | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                         | <i>G. megatae</i> Y.Ito [A]<br><i>G. pseudomalacocarpus</i> Backeberg [A]<br><i>G. onychacanthum</i> Y. Ito [A]<br><i>G. tortuga Blossfeld</i> ex Backeberg g [A]<br><i>G. tuda</i> Y.Ito [A]                                                                                                                                                                                                              |
| <i>G. schickendantzii</i> ssp. <i>bergeri</i> Neuherer                                        | Salta-Argentina                                                                                                                                    | <i>G. michoga</i> Fric ex Y.Ito nom. illeg., p.p                                                                                                                                                                                                                                                                            | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                         | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose [H], [A], [K]                                                                                                                                                                                                                                                                                                                                       |
| <i>G. schickendantzii</i> ssp. <i>pectinatum</i> Neuherer                                     | La Rioja-Argentina                                                                                                                                 | <i>G. schickendantzii</i> v. <i>pectinispinum</i> J.Lambert<br><i>G. schickendantzii</i> v. <i>pectinatum</i> Neuherer                                                                                                                                                                                                      | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                         | Synonym<br><i>G. anthrostele</i> F.Ritter [H], [A], [K]<br><i>G. michoga</i> Fric ex Y.Ito nom. illeg. [H], [A], [K]<br><i>G. pungens</i> Fleischer [K]                                                                                                                                                                                                                                                    |
| <i>G. schickendantzii</i> ssp. <i>periferalium</i> Neuherer                                   | Cordoba-Argentina                                                                                                                                  |                                                                                                                                                                                                                                                                                                                             | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                         | <i>G. marsoneri</i> ssp. <i>matoense</i> (Buining & Brederoo) P.J.Braun & Esteves [H], [A]                                                                                                                                                                                                                                                                                                                 |
| <i>G. pungens</i> Fleischer                                                                   |                                                                                                                                                    | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                                                                                                                                                                                                                                                                      | <i>G. schickendantzii</i> (F.A.C.Weber) Britton & Rose                         | Synonym<br><i>G. eytianum</i> Cardenas [H]<br><i>G. fricianum</i> Plenik [H]<br><i>G. hamatum</i> F.Ritter [H], [A]<br><i>G. matoense</i> Buining et Brederoo [H], [A]<br><i>G. megatae</i> Y.Ito [H]<br><i>G. onychacanthum</i> Y. Ito [H]<br><i>G. pseudomalacocarpus</i> Backeberg [H]<br><i>G. tortuga Blossfeld</i> ex Backeberg [H]<br><i>G. tuda</i> Y.Ito [H]                                      |
| <i>G. lumberrasense</i> F.Ritter nom. inval.                                                  | Salta-Argentina                                                                                                                                    | <i>G. delaetii</i> (K.Schumann) A.V.Fric                                                                                                                                                                                                                                                                                    | <i>G. schickendantzii</i> ssp. <i>delaetii</i> (K.Schumann) Chares             | <i>G. megatae</i> Y.Ito [K]                                                                                                                                                                                                                                                                                                                                                                                |
| -B-B2-i (H.Till) Series <i>Periferalia</i> -Aggregat <i>Periferalia</i>                       |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                             | Subgenus <i>Muscosemineum</i>                                                  | Synonym<br><i>G. eytianum</i> Cardenas [K]<br><i>G. fricianum</i> Plenik [K]<br><i>G. tuda</i> Y.Ito [K]                                                                                                                                                                                                                                                                                                   |
| <i>G. anisitsii</i> (K.Schum) Britton & Rose                                                  | Santa Cruz-Bolivia<br>Concepcion-Paraguay                                                                                                          |                                                                                                                                                                                                                                                                                                                             | <i>G. anisitsii</i> (K.Schum) Britton & Rose                                   | <i>G. anisitsii</i> ssp. <i>damsii</i> (Scumann) Chares [H]                                                                                                                                                                                                                                                                                                                                                |
| <i>G. anisitsii</i> v. <i>griseopallidum</i> H.Till & Amerhauser                              | Santa Cruz-Bolivia<br>Chuquisaca-Bolivia                                                                                                           | <i>G. griseopallidum</i> Backeberg. nom. nud. p.p. <sensu H.Till & Amerhauser>                                                                                                                                                                                                                                              | <i>G. anisitsii</i> (K.Schum) Britton & Rose                                   | Synonym<br><i>G. anisitsii</i> ssp. <i>multiproliferum</i> (P. J. Braun) P. J. Braun & Esteves [H]<br><i>G. damsii</i> v. <i>multiproliferum</i> P.J. Braun [H]                                                                                                                                                                                                                                            |
| <i>G. anisitsii</i> v. <i>pseudomalacocarpus</i> Backeberg ex H.Till & Amerhauser             | Santa Cruz-Bolivia                                                                                                                                 | <i>G. pseudomalacocarpus</i> Backeberg nom. nud.                                                                                                                                                                                                                                                                            | <i>G. marsoneri</i> ssp. <i>megatae</i> (Y.Ito) Chares                         | <i>G. anisitsii</i> (K. Schumann) Britton & Rose [H], [A]                                                                                                                                                                                                                                                                                                                                                  |
| <i>G. anisitsii</i> ssp. <i>holdii</i> Amerhauser                                             | Santa Cruz-Bolivia                                                                                                                                 |                                                                                                                                                                                                                                                                                                                             | <i>G. marsoneri</i> ssp. <i>megatae</i> (Y.Ito) Chares                         | Synonym<br><i>G. damsii</i> (K.Schumann) Britton & Rose [A]<br><i>G. joossensianum</i> (Boedeker) Britton & Rose [A]<br><i>G. joossensianum</i> = <i>G. schickendantzii</i> ssp. <i>delaetii</i> [H]<br><i>G. griseopalidum</i> Backeberg [H], [A]<br><i>G. anisitsii</i> ssp. <i>multiproliferum</i> (P. J. Braun) P. J. Braun & Esteves [A]<br><i>G. damsii</i> v. <i>multiproliferum</i> P.J. Braun [A] |
| <i>G. anisitsii</i> ssp. <i>holdii</i> v. <i>tucavocense</i> Backeberg ex H.Till & Amerhauser | Santa Cruz-Bolivia                                                                                                                                 | <i>G. damsii</i> v. <i>tucavocense</i> Backeberg nom. inval.                                                                                                                                                                                                                                                                | <i>G. anisitsii</i> ssp. <i>damsii</i> (Scumann) Chares                        | <i>G. anisitsii</i> ssp. <i>mihanovichii</i> ? [H]                                                                                                                                                                                                                                                                                                                                                         |
| <i>G. anisitsii</i> ssp. <i>volkeri</i> Amerhauser                                            | Santa Cruz-Bolivia                                                                                                                                 |                                                                                                                                                                                                                                                                                                                             | <i>G. stenopleurum</i> F.Ritter                                                | Synonym<br><i>G. anisitsii</i> ssp. <i>multiproliferum</i> (P. J. Braun) P. J. Braun & Esteves [H]<br><i>G. damsii</i> v. <i>multiproliferum</i> P.J. Braun [H]                                                                                                                                                                                                                                            |
| <i>G. megatae</i> Y.Ito                                                                       | Santa Cruz-Bolivia<br>Cochabamba-Bolivia<br>Boqueron-Paraguay                                                                                      | <i>G. onychacanthum</i> Y. Ito<br><i>G. piricarpum</i> nom. nud.<br><i>G. rotundricarpum</i> (Fric) nom. nud.<br><i>G. tuda</i> Y.Ito<br><i>G. tortuga Blossfeld</i> ex Backeberg<br><i>G. tuda</i> v. <i>chuquisacanum</i> nom. nud. ?<br><i>G. tuda</i> v. <i>bolivianum</i> F. Ritter<br><i>G. brevistylum</i> nom. nud. | <i>G. marsoneri</i> ssp. <i>megatae</i> (Y.Ito) Chares                         | <i>G. anisitsii</i> ssp. <i>mihanovichii</i> ? [H]                                                                                                                                                                                                                                                                                                                                                         |
| <i>G. megatae</i> ssp. <i>matoense</i> (Buining et Brederoo) H.Till & Amerhauser              | Mato Grosso do Sul-Brazil                                                                                                                          | <i>G. delaetii</i> ssp. <i>marsoneri</i> (Fric ex Y.Ito) H.Till & Amerhauser                                                                                                                                                                                                                                                | <i>G. marsoneri</i> ssp. <i>matoense</i> (Buining et Brederoo) Braun & Esteves | Synonym<br><i>G. mihanovichii</i> (Fric ex Gurke) Britton & Rose [H]                                                                                                                                                                                                                                                                                                                                       |
| <i>G. megatae</i> ssp. <i>zecheri</i> Amerhauser                                              |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>G. fricianum</i> Plesnik                                                                   | Bolivia?<br>Paraguay?                                                                                                                              | <i>G. megatae</i> Y.Ito<br><i>G. mihanovichii</i> (Fric ex Gurke) Britton & Rose                                                                                                                                                                                                                                            | <i>G. marsoneri</i> ssp. <i>megatae</i> (Y.Ito) Chares                         |                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                               |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                             |                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                            |

literature

The Magazine of *Gymnocalycium* By the Arbeitsgruppe *Gymnocalycium* (AGG) 1991-2009 David Hunt, Nigel Taylor ,Graham Charles, and their supported team The New Cactus Lexicon 2006 Editorial Committee  
E. Anderson The Cactus Family 2001 R. Kiesling Cat. de las Plantas Vasculares de la Republica Argentina 1999, Instituto de Botanica Darwinio 2007 Web Page  
Graham Charles *Gymnocalycium* In Habitat and Culture 2005

A Red character : Texta that should be noted, especially.

A blue character : Texta that should be noted.

This table is designed by Takashi Shimada







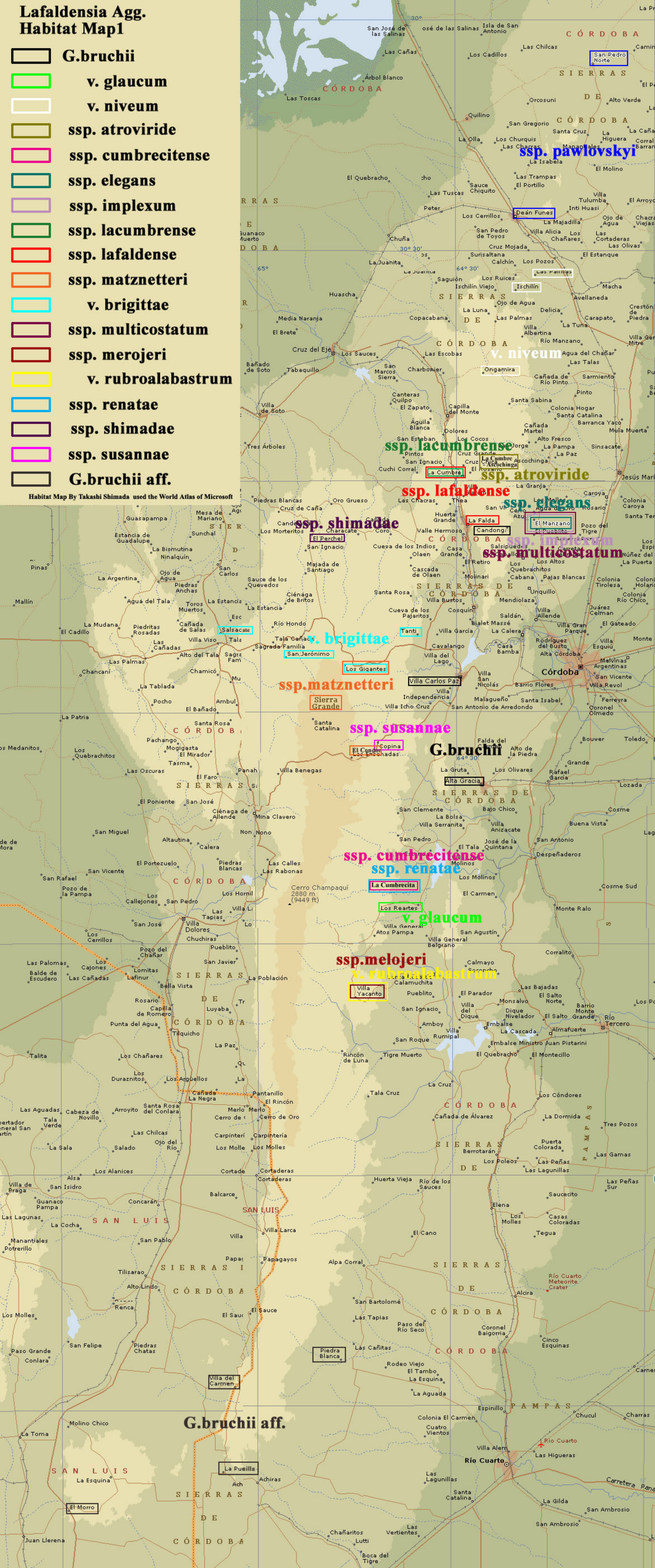




Lafaldensia Agg.  
Habitat Map1

- G.bruchii
- v. glaucum
- v. niveum
- ssp. atroviride
- ssp. cumbrecitense
- ssp. elegans
- ssp. implexum
- ssp. lacumbrense
- ssp. lafaldense
- ssp. matznetteri
- v. brigittae
- ssp. multicostatum
- ssp. merojeri
- v. rubroalabastrum
- ssp. renatae
- ssp. shimadae
- ssp. susannae
- G.bruchii aff.

Habitat Map By Takashi Shimada used the World Atlas of Microsoft





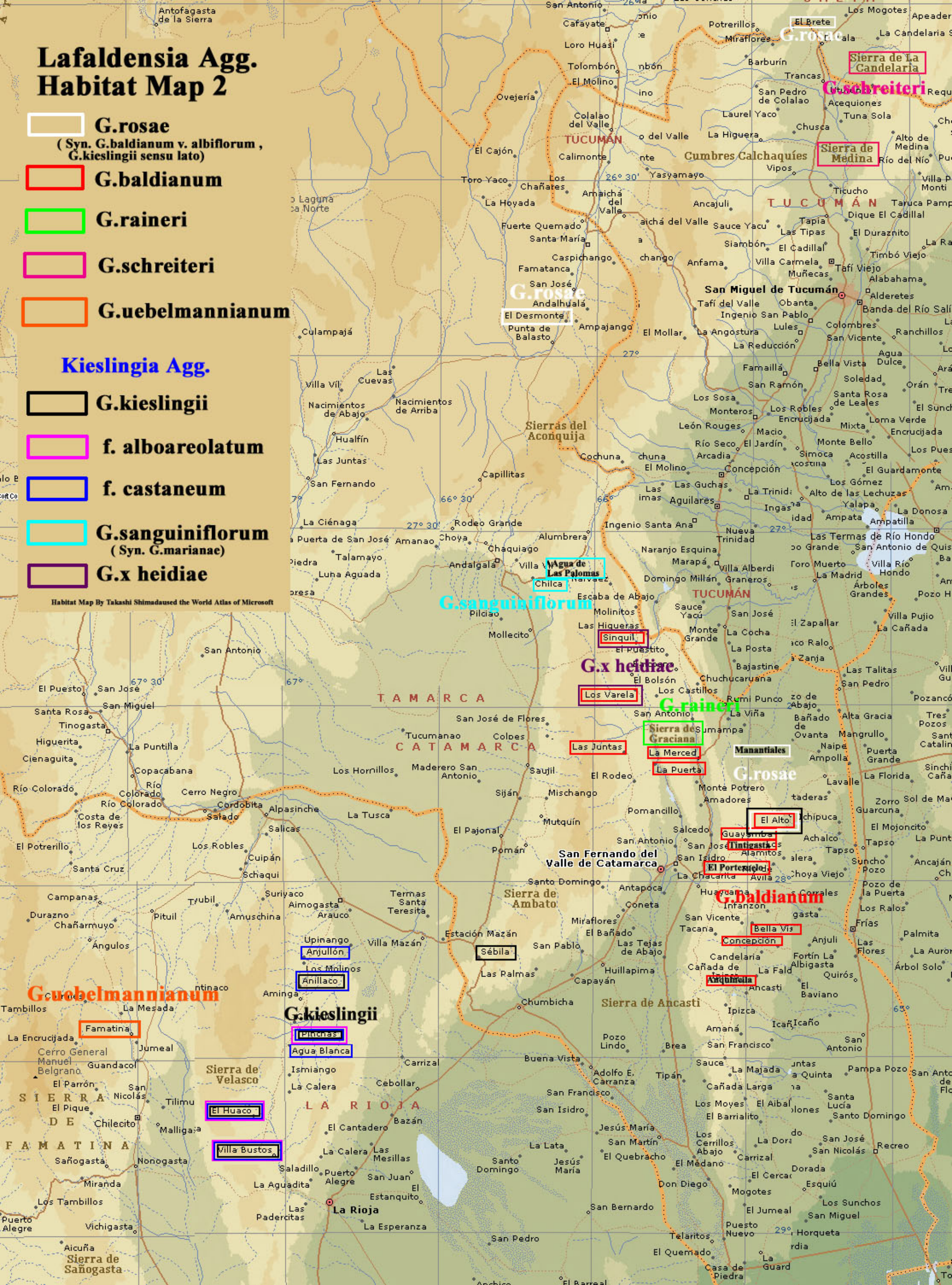
# Lafaldensia Agg. Habitat Map 2

- G.rosae**  
(Syn. *G.baldianum* v. *albiflorum*,  
*G.kieslingii* sensu lato)
- G.baldianum**
- G.raineri**
- G.schreiteri**
- G.uebelmannianum**

## Kieslingia Agg.

- G.kieslingii**
- f. alboareolatum**
- f. castaneum**
- G.sanguiniflorum**  
(Syn. *G.marianae*)
- G.x heidiaie**

Habitat Map By Takashi Shimada used the World Atlas of Microsoft

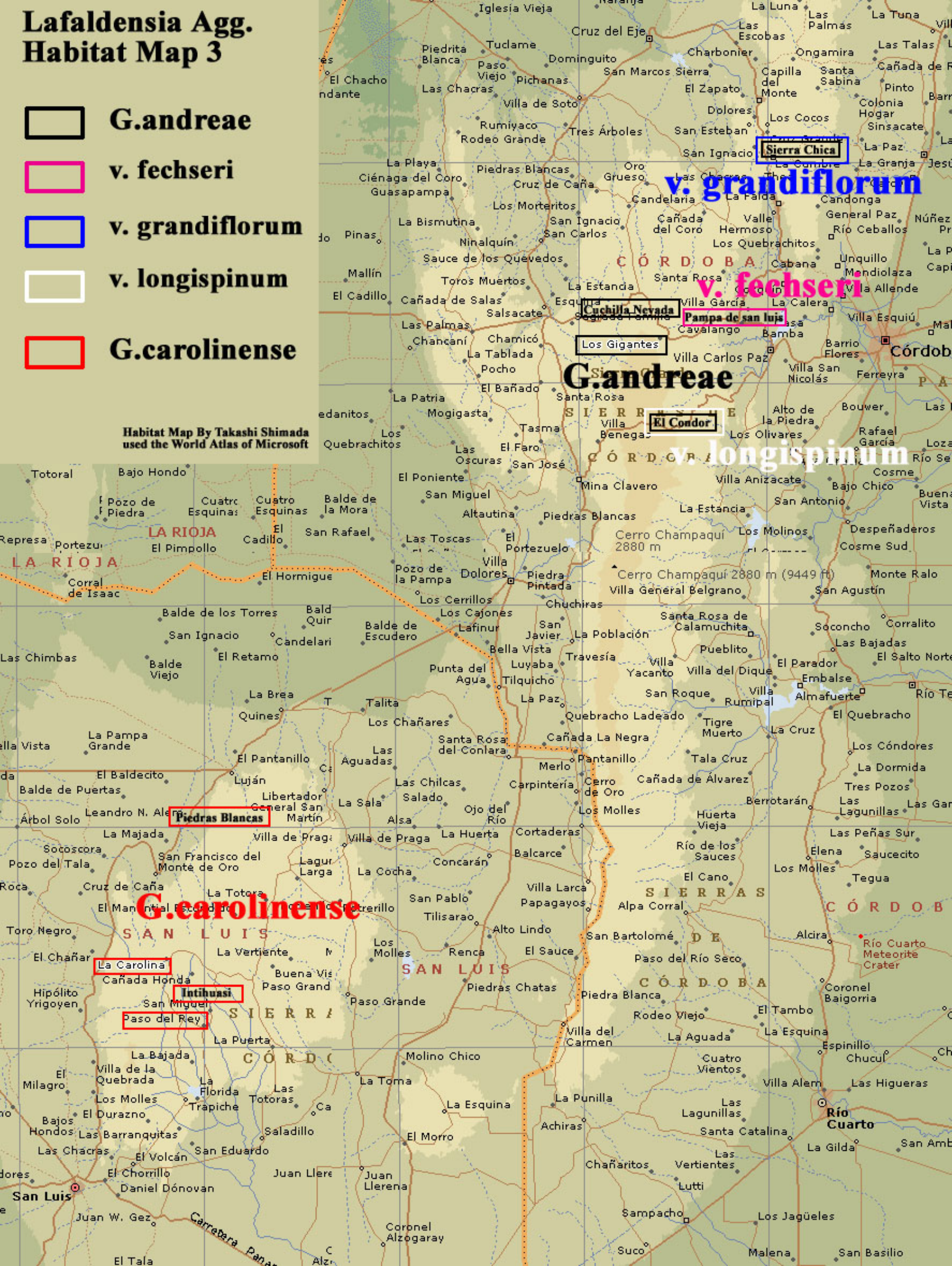




# Lafaldensia Agg. Habitat Map 3

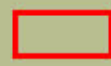
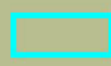
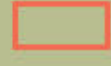
-  **G.andreae**
-  **v. fechseri**
-  **v. grandiflorum**
-  **v. longispinum**
-  **G.carolinense**

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft

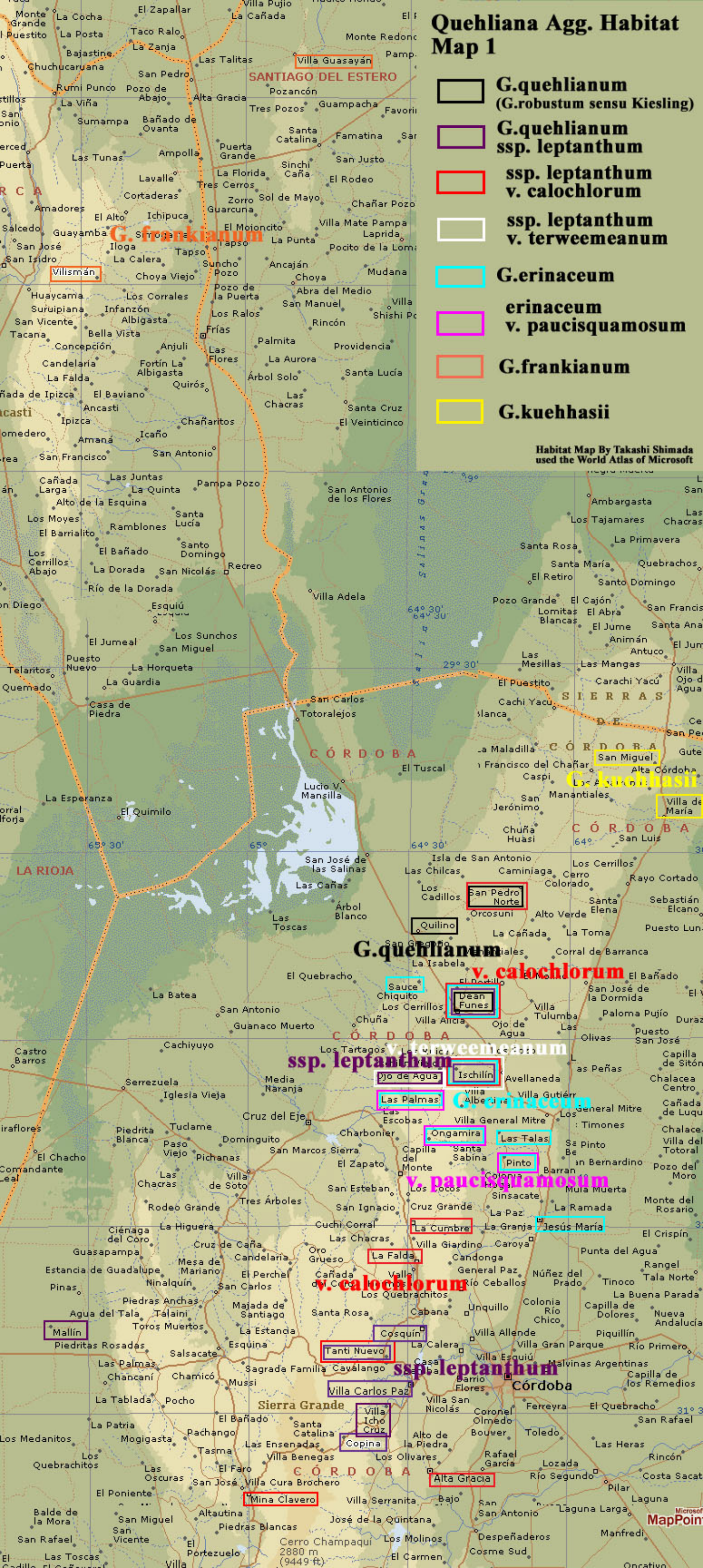




# Quehliana Agg. Habitat Map 1

-  **G.quehlianum**  
(G.robustum sensu Kiesling)
-  **G.quehlianum**  
**ssp. leptanthum**
-  **ssp. leptanthum**  
**v. calochlorum**
-  **ssp. leptanthum**  
**v. terweemeanum**
-  **G.erinaceum**
-  **erinaceum**  
**v. paucisquamosum**
-  **G.frankianum**
-  **G.kuehhasii**

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft







## Quehliana Agg. Habitat Map 2

### Quehliana Agg.

  **G.erolesii**  
(Syn. *G.schroederianum* ssp. *boessii*)

### Hyptiacantha Agg.

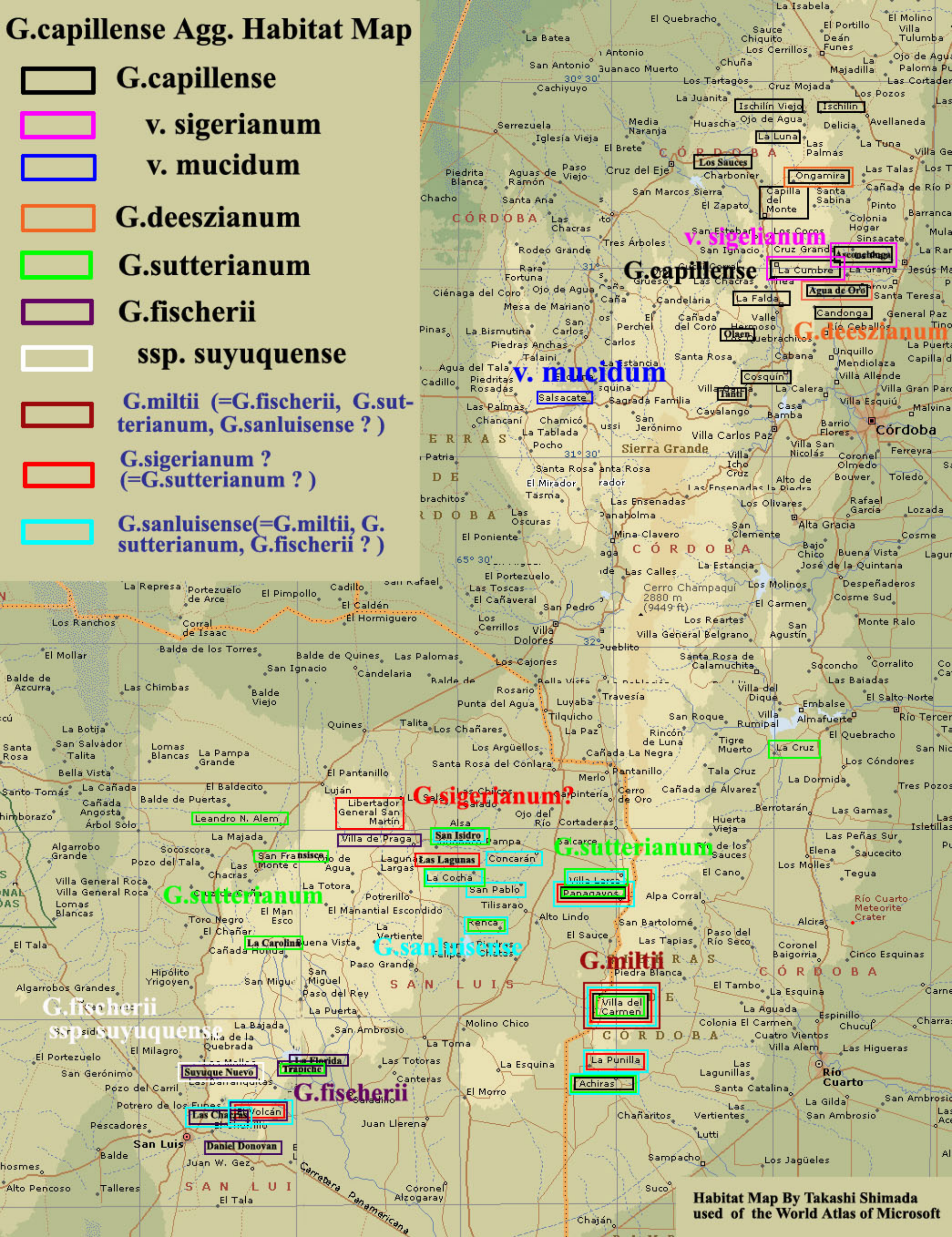
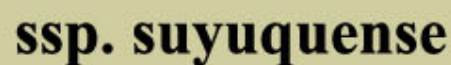
  **G.hyptiacanthum** ssp. *schroederianum*  
  v. *paucicostatum*

Habitat Map By Takashi Shimada  
used the World Atlas of Microso





## G.capillense Agg. Habitat Map



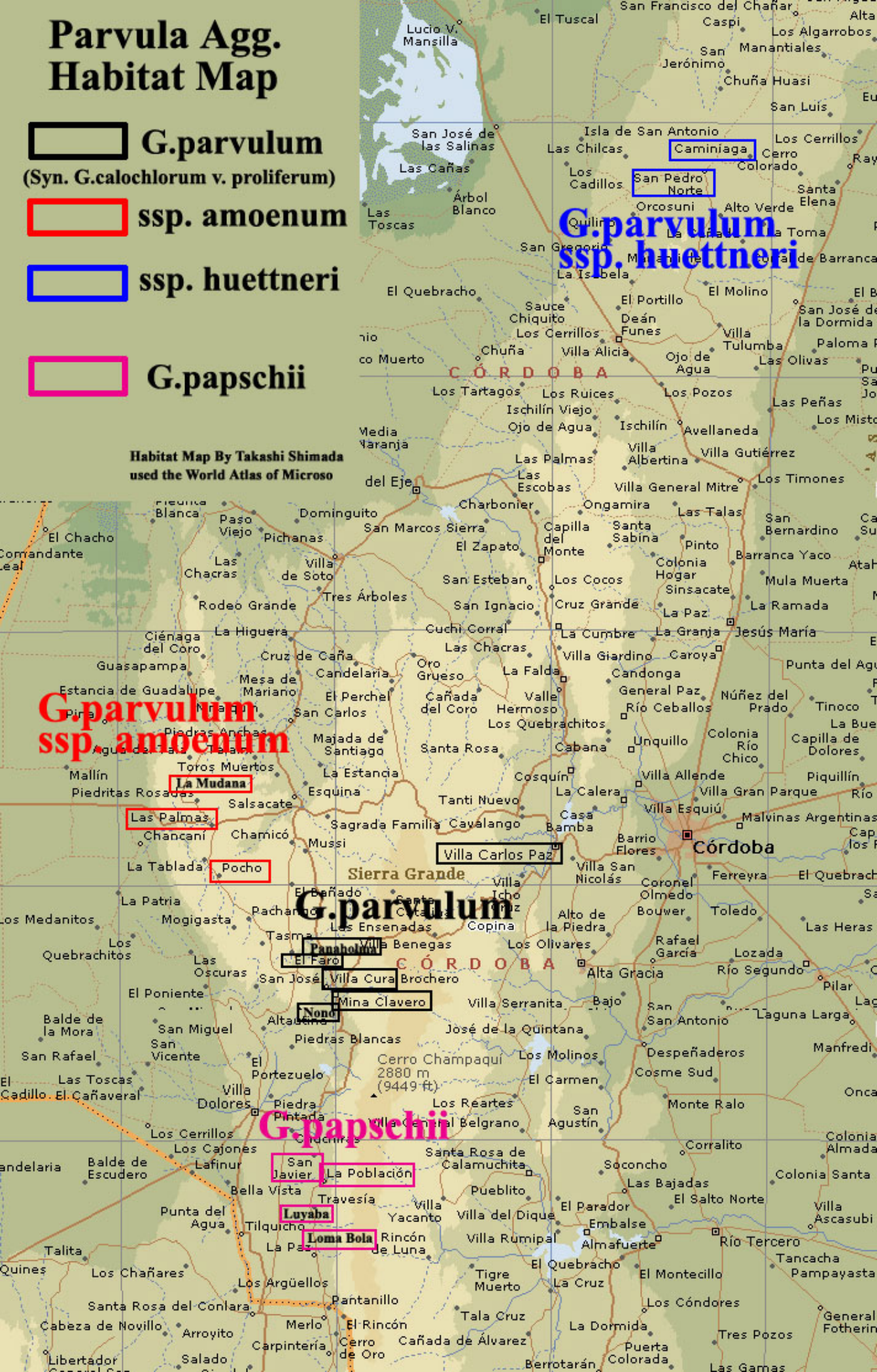
**Habitat Map By Takashi Shimada**  
used of the World Atlas of Microsoft



# Parvula Agg. Habitat Map

- G.parvulum**  
(Syn. *G.calochlorum* v. *proliferum*)
- ssp. amoenum**
- ssp. huettneri**
- G.papschii**

Habitat Map By Takashi Shimada  
used the World Atlas of Microso





 **G.kieslingii**

 **f. alboareolatum**

 **f. castaneum**

 **G.sanguiniflorum**  
(Syn. *G.marianae*)

 **G.x heidiae**

**Agg. Lafaldensia**

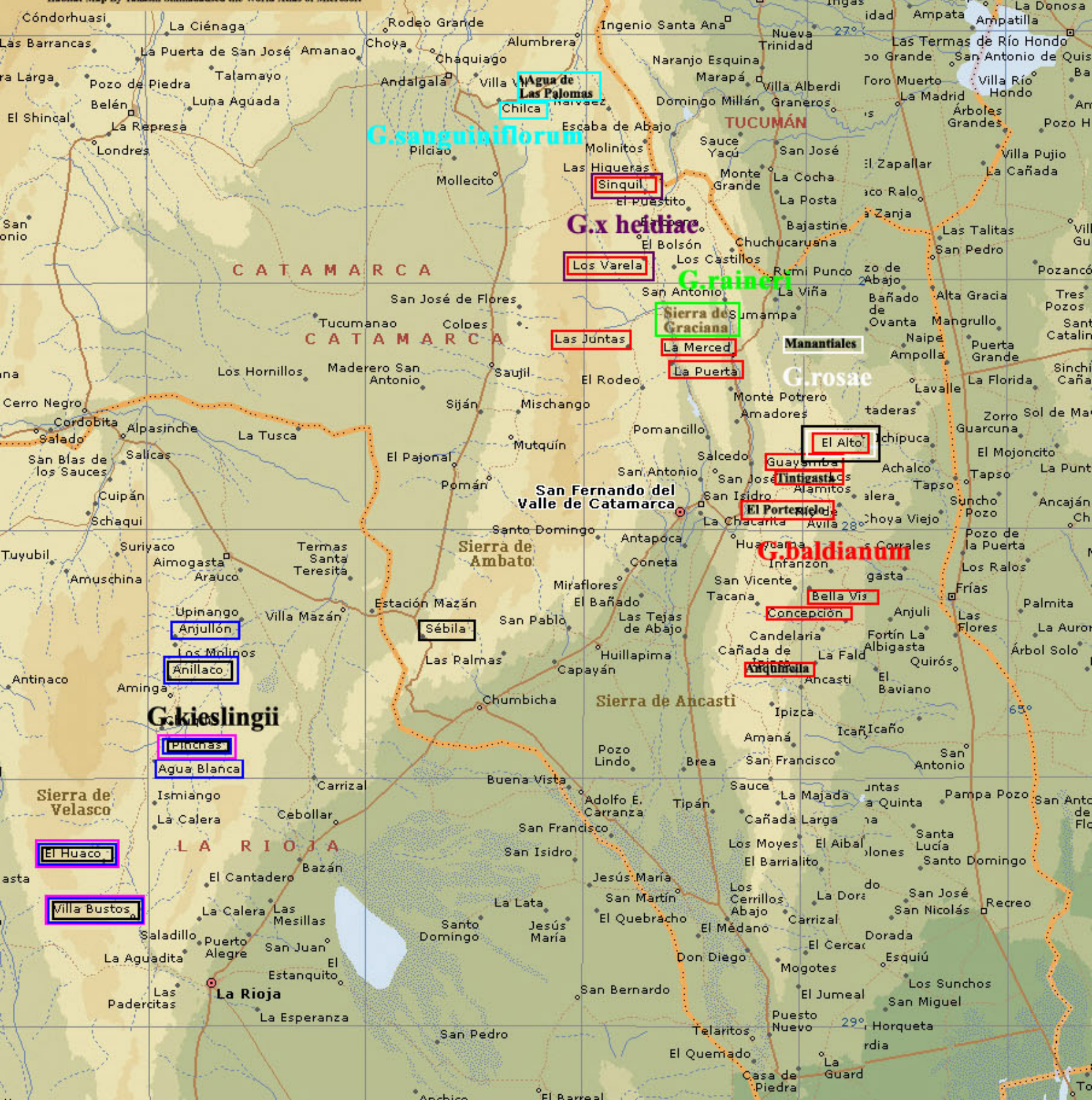
 **G.rosae**  
(Syn. *G.baldianum* v. *albiflorum* ,  
*G.kieslingii* sensu lato)

 **G.baldianum**

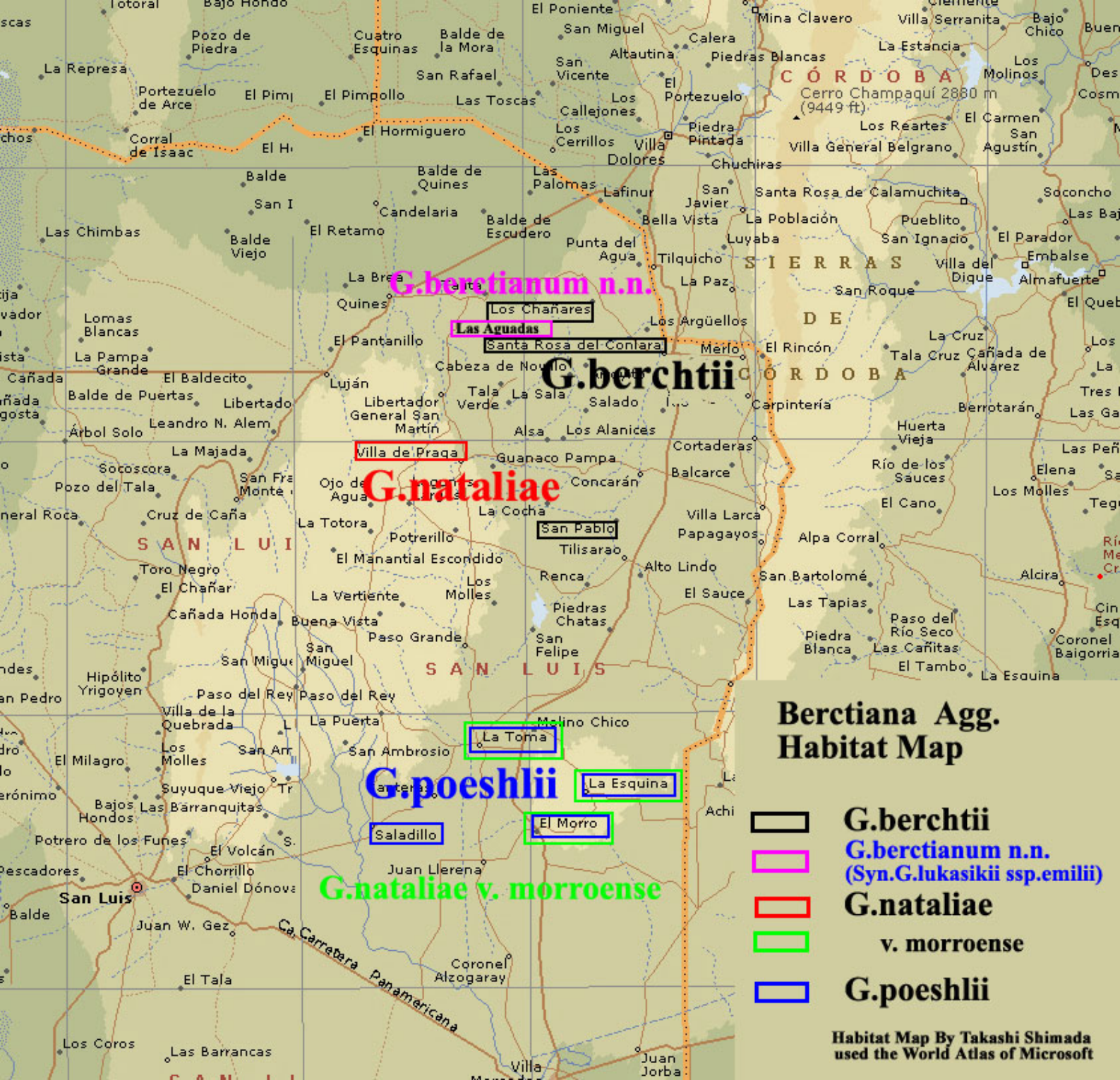
 **G.raineri**

 **G.schreiteri**

**Habitat Map** By Takashi Shimada used the World Atlas of Microsoft







## Berctiana Agg. Habitat Map



**G.berchtii**



**G.berctianum n.n.**  
(Syn. *G.lukasikii ssp.emilii*)



**G.nataliae**



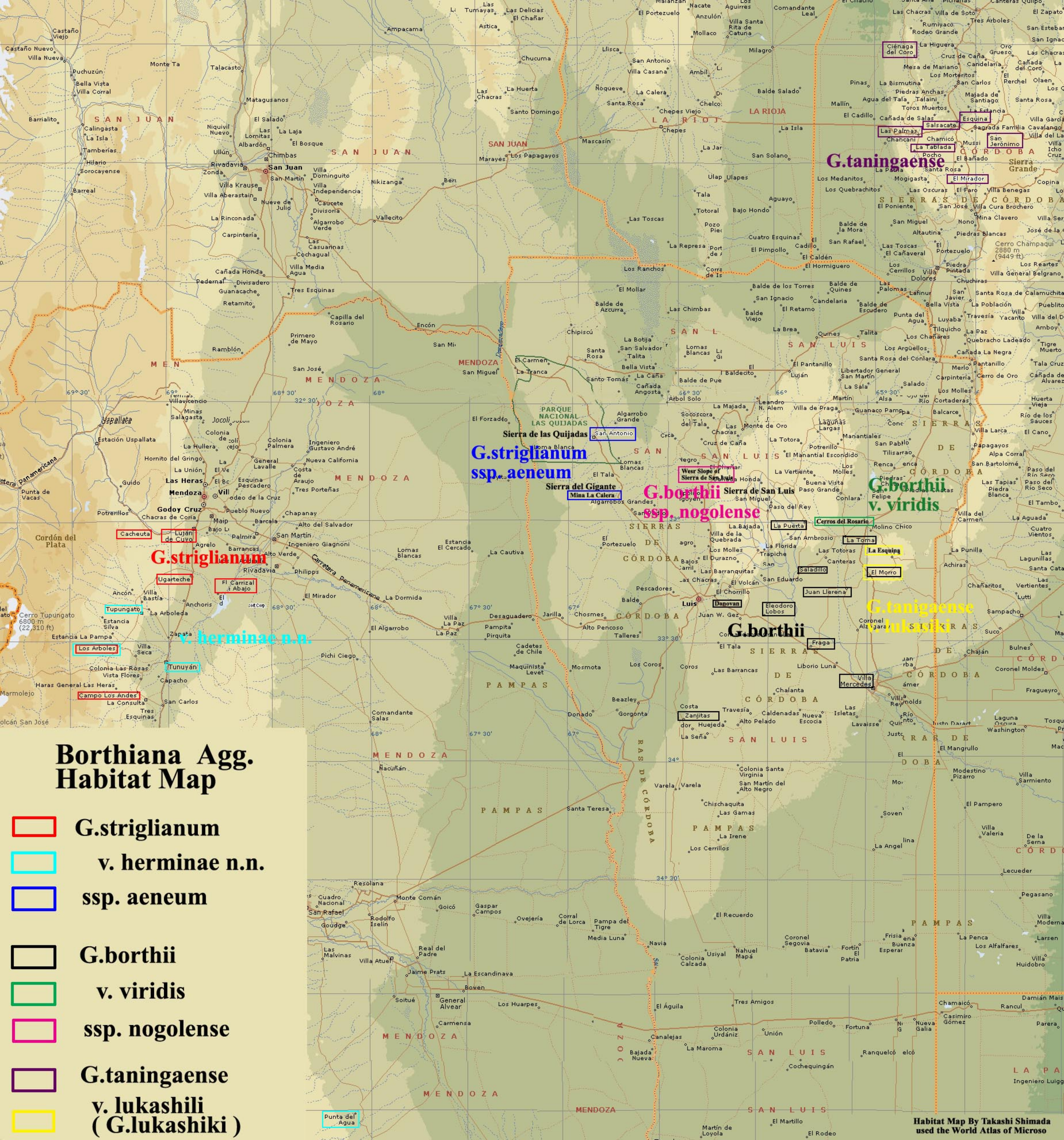
**v. morroense**



**G.poeshlui**

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft





# Borthiana Agg. Habitat Map

- G.striglianum**
- v. herminae n.n.**
- ssp. aeneum**
- G.borthii**
- v. viridis**
- ssp. nogolense**
- G.tanigaense**
- v. lukashili  
( G.lukashiki )**



## Amerhauseriana Agg. Habitat Map

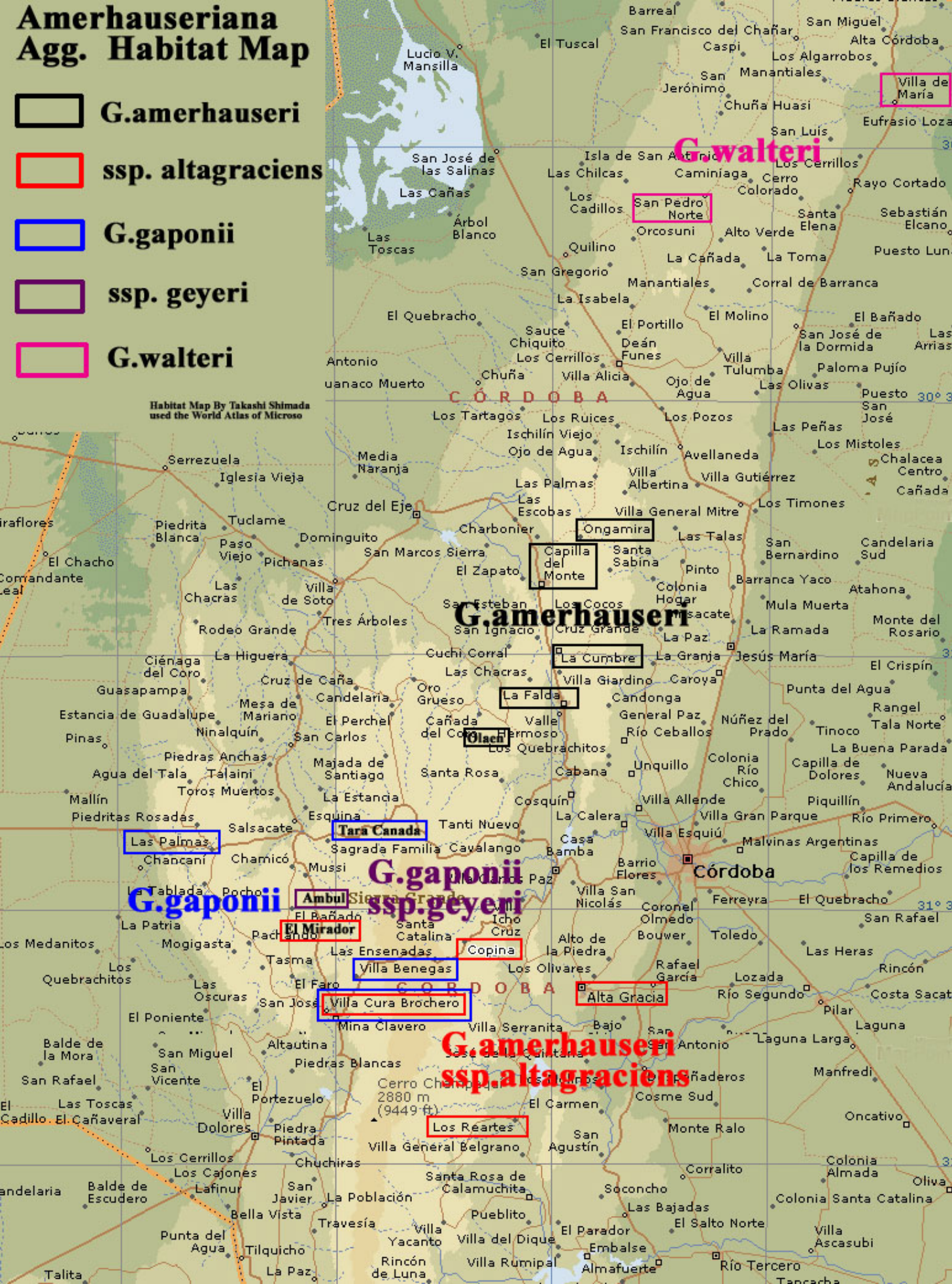
☐ G.amerhauseri

**ssp. altagraciens**

**G.gaponii**

**ssp. geyeri**

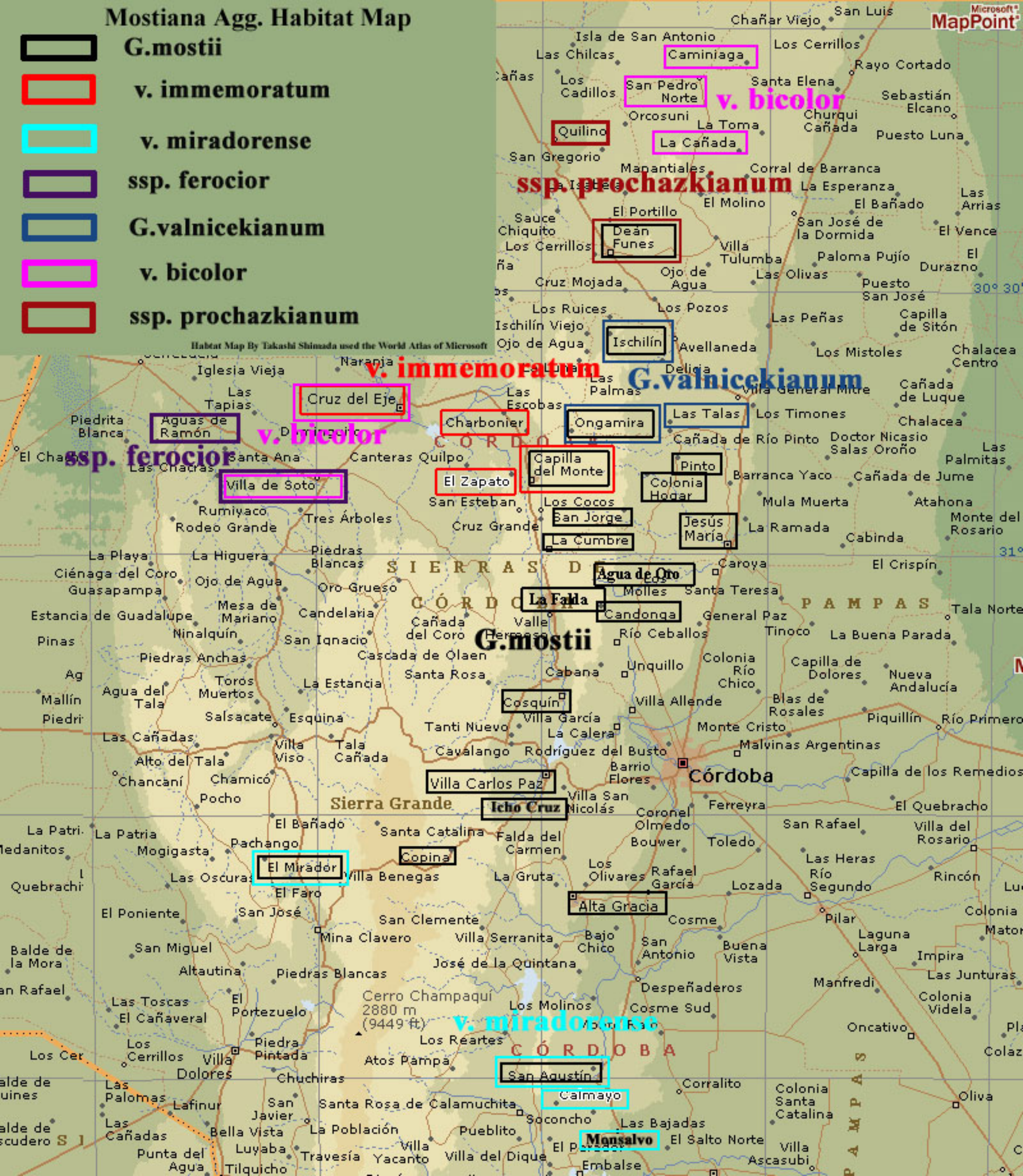
**G.walteri**





# Mostiana Agg. Habitat Map

- G. mostii**
- v. immemorum**
- v. miradorensis**
- ssp. ferocior**
- G. valnicekianum**
- v. bicolor**
- ssp. prochazkianum**





## Rhodanthera Agg. Habitat Map

- G.rhodantherum**
- v. cinerascens**
- G.guanchinense**
- G.ritterianum**
- ssp. acentracanthum**
- G.alboareolatum**
- G.jochumii**
- v. jugum**
- G.weissianum sensu Till (Syn. G.polycephalum)**

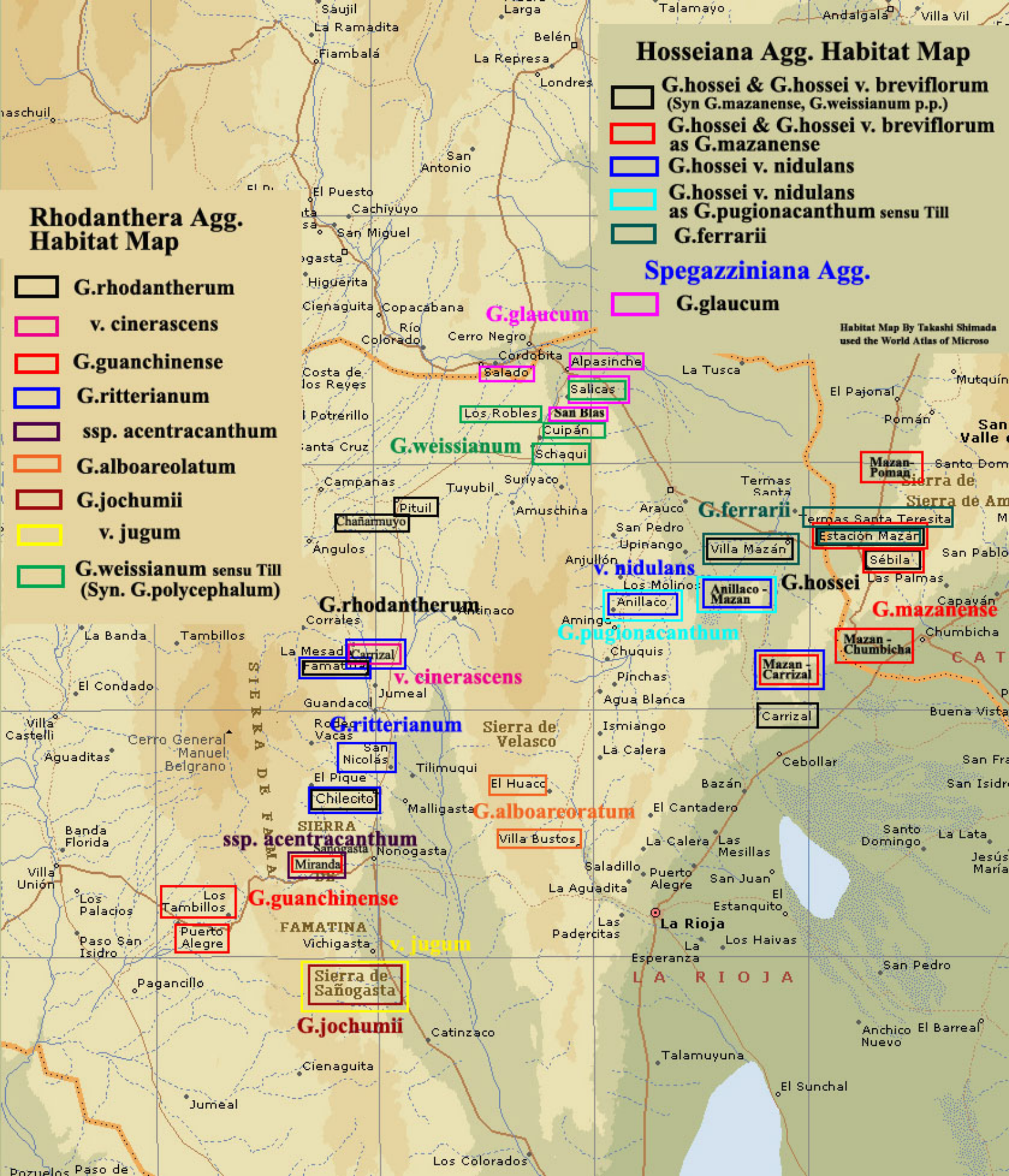
## Hosseiana Agg. Habitat Map

- G.hossei & G.hossei v. breviflorum (Syn G.mazanense, G.weissianum p.p.)**
- G.hossei & G.hossei v. breviflorum as G.mazanense**
- G.hossei v. nidulans**
- G.hossei v. nidulans as G.pugionacanthum sensu Till**
- G.ferrarii**

## Spegazziniana Agg.

- G.glaucum**

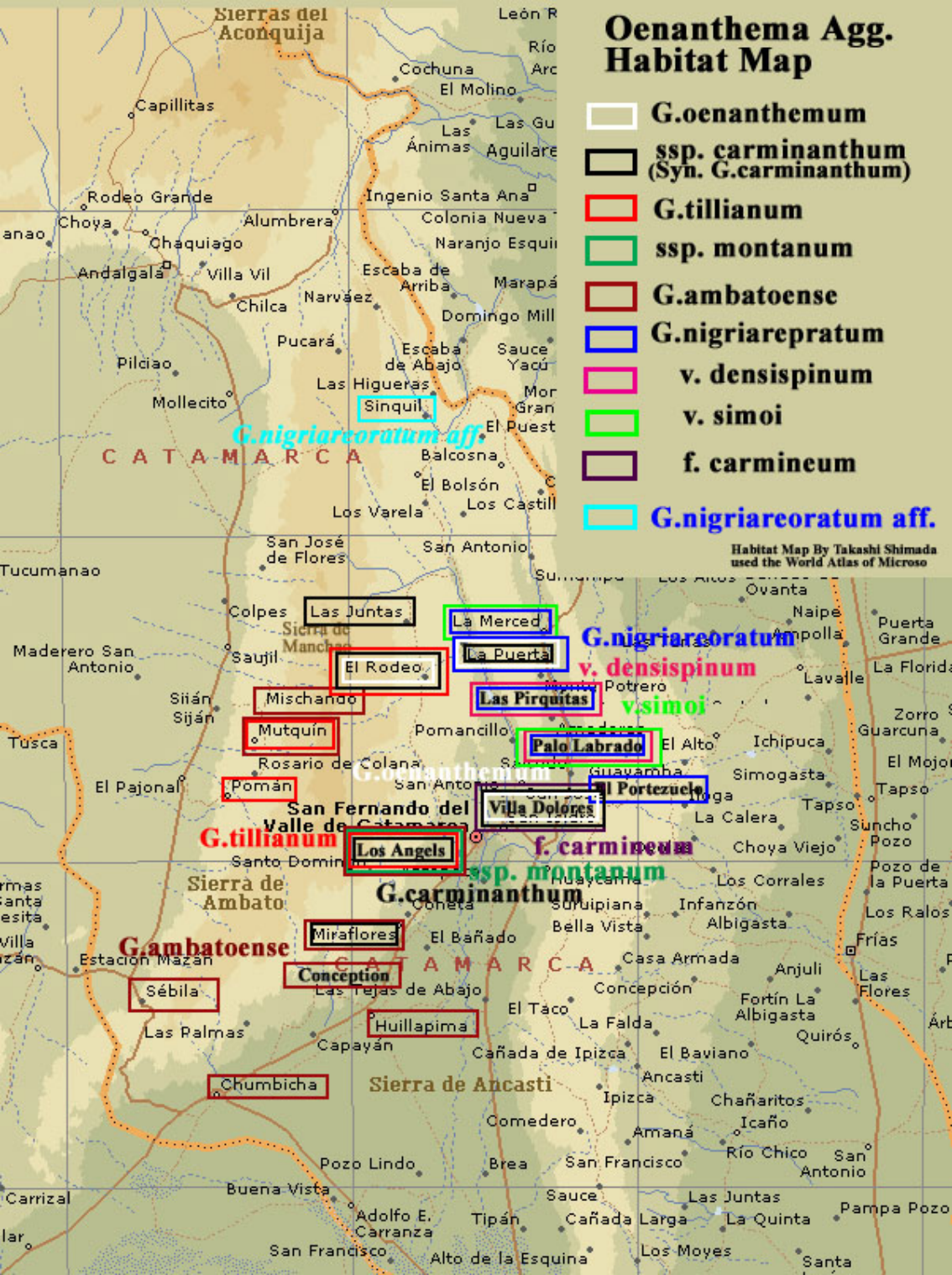
Habitat Map By Takashi Shimada  
used the World Atlas of Micros





# Oenanthema Agg. Habitat Map

- G.oenanthemum**
- ssp. carminanthum**  
(Syn. *G.carminanthum*)
- G.tillianum**
- ssp. montanum**
- G.ambatoense**
- G.nigriarepratum**
- v. densispinum**
- v. simoi**
- f. carmineum**
- G.nigriarecoratum aff.**



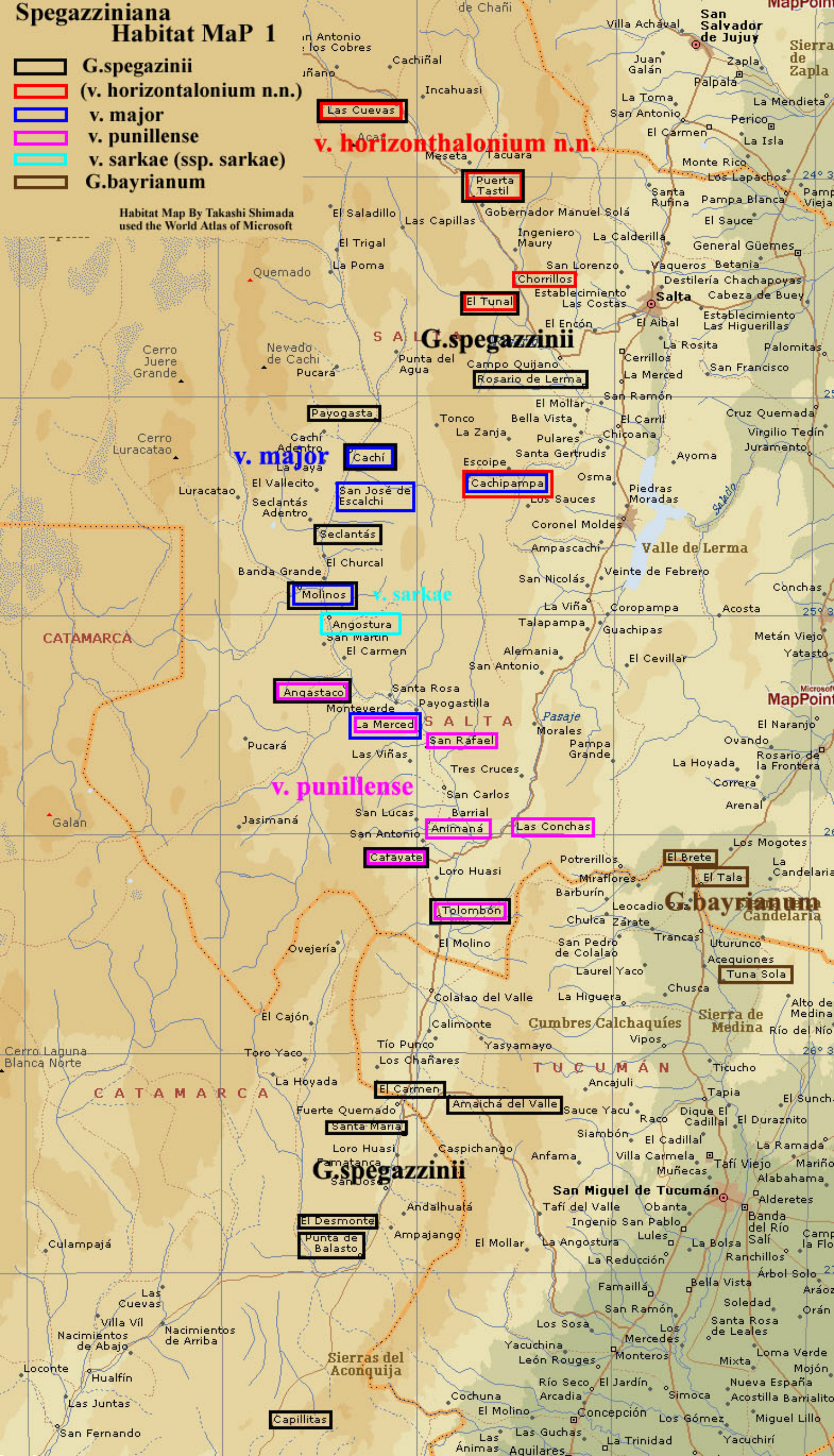


# Spegazziniana

## Habitat MaP 1

- G.spegazzinii**
- (v. horizontalonium n.n.)**
- v. major**
- v. punillense**
- v. sarkae (ssp. sarkae)**
- G.bayrianum**

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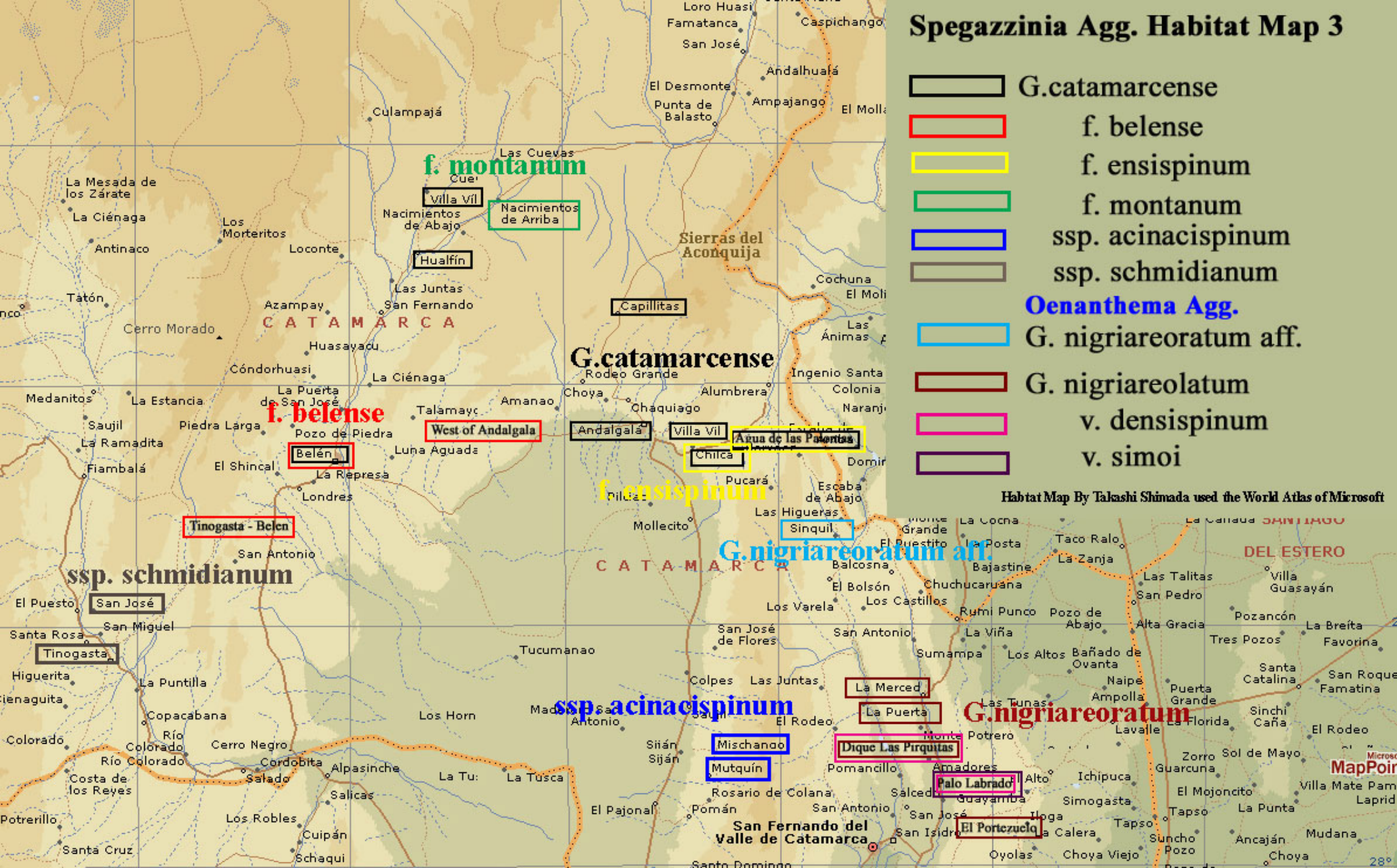






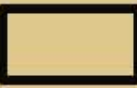


# Spegazzinia Agg. Habitat Map 3





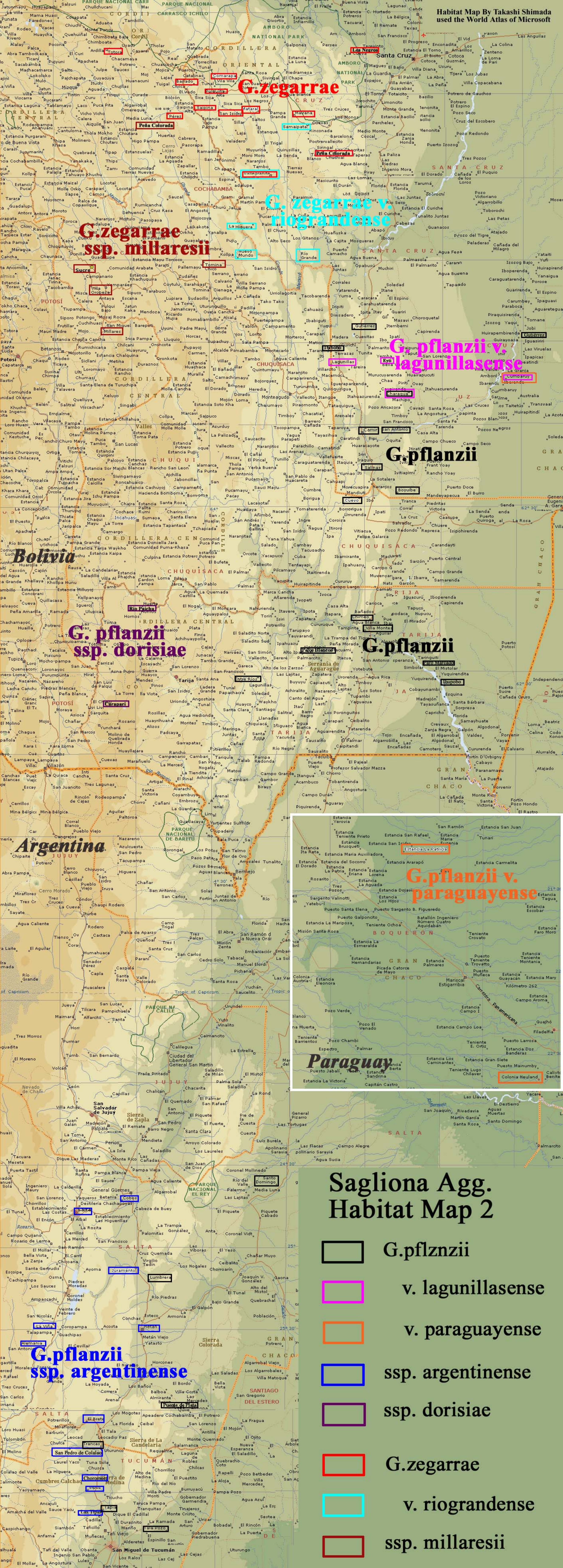
# Saglionia Agg. Habitat Map 1

-  G.saglionis
-  f. splendens n.n.
-  G.saglionis ssp. tilcarensis

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft





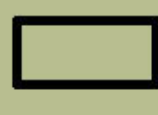




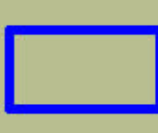


# Chiquitana, Chacoensia Agg. Habitat Map

Agg. Chiquitana

 **G.chiquitanum**

 **v. hammerschmidii**

 **G.paediophilum**

Agg. Chacoensia

 **G.chacoense**

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**G.paediophilum**

**Cerro Leon**

**G.chacoense**

**G.chiquitanum  
v. hammerschmidii**

**G.chiquitanum**



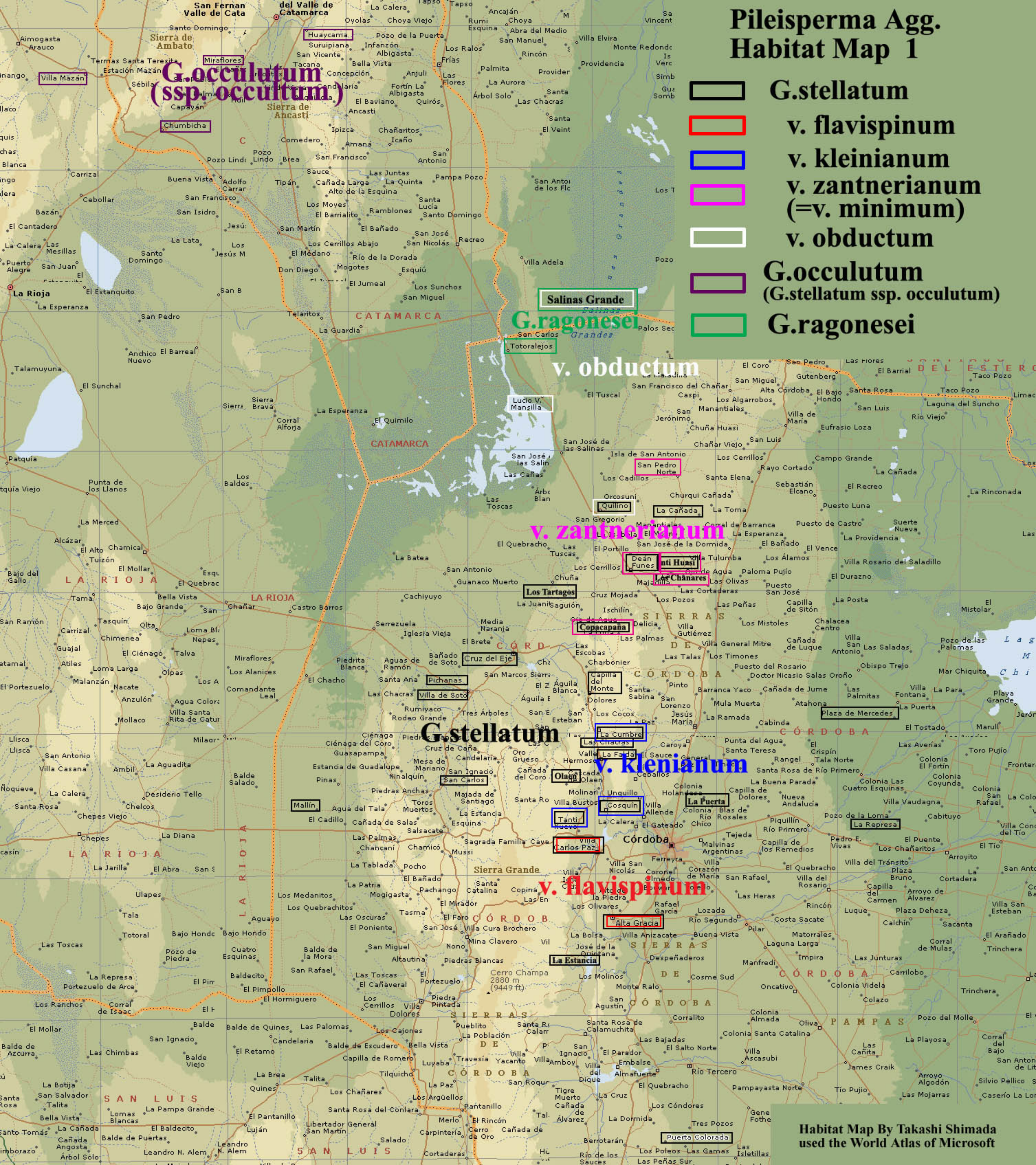






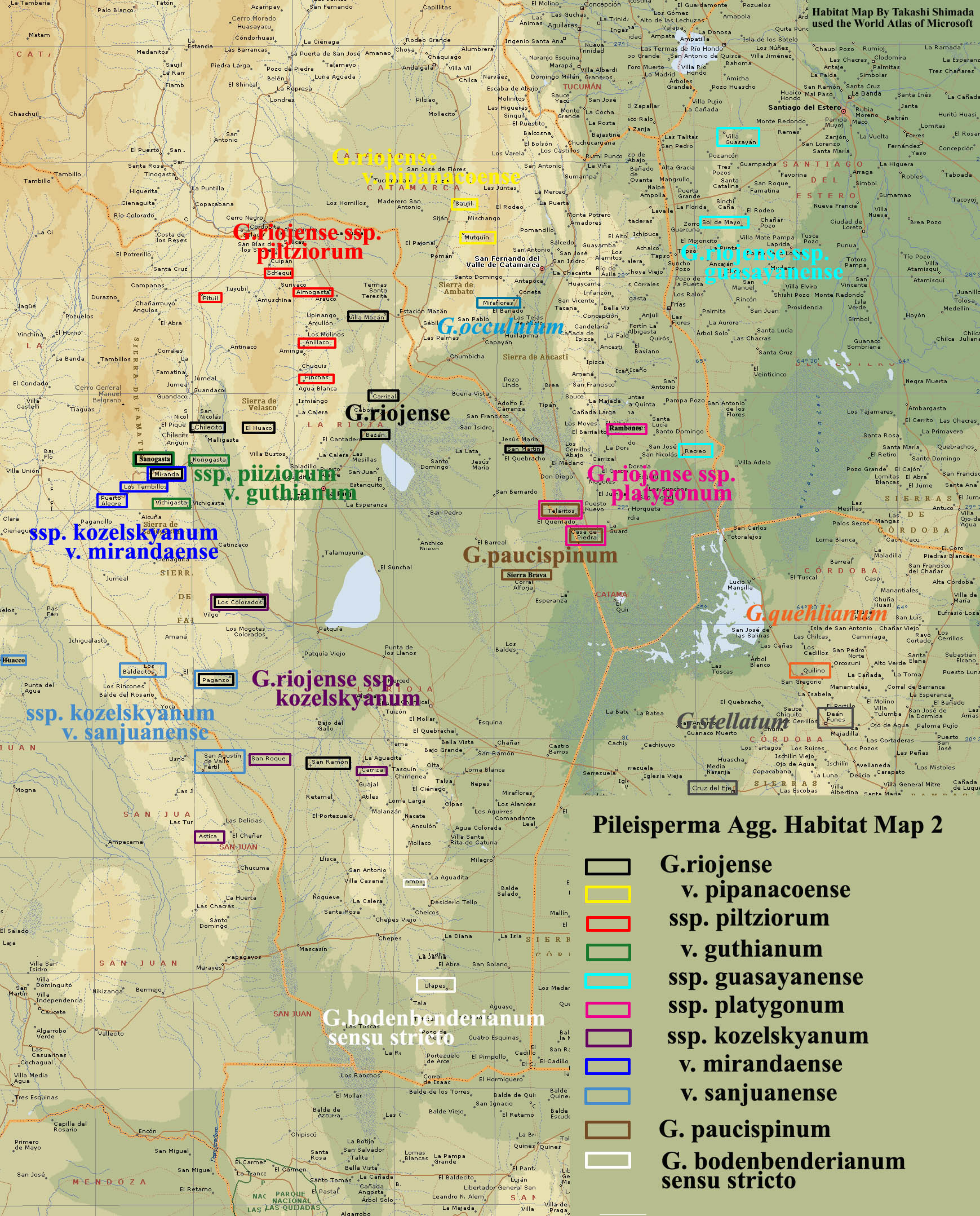


## Pileisperma Agg. Habitat Map 1



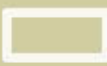
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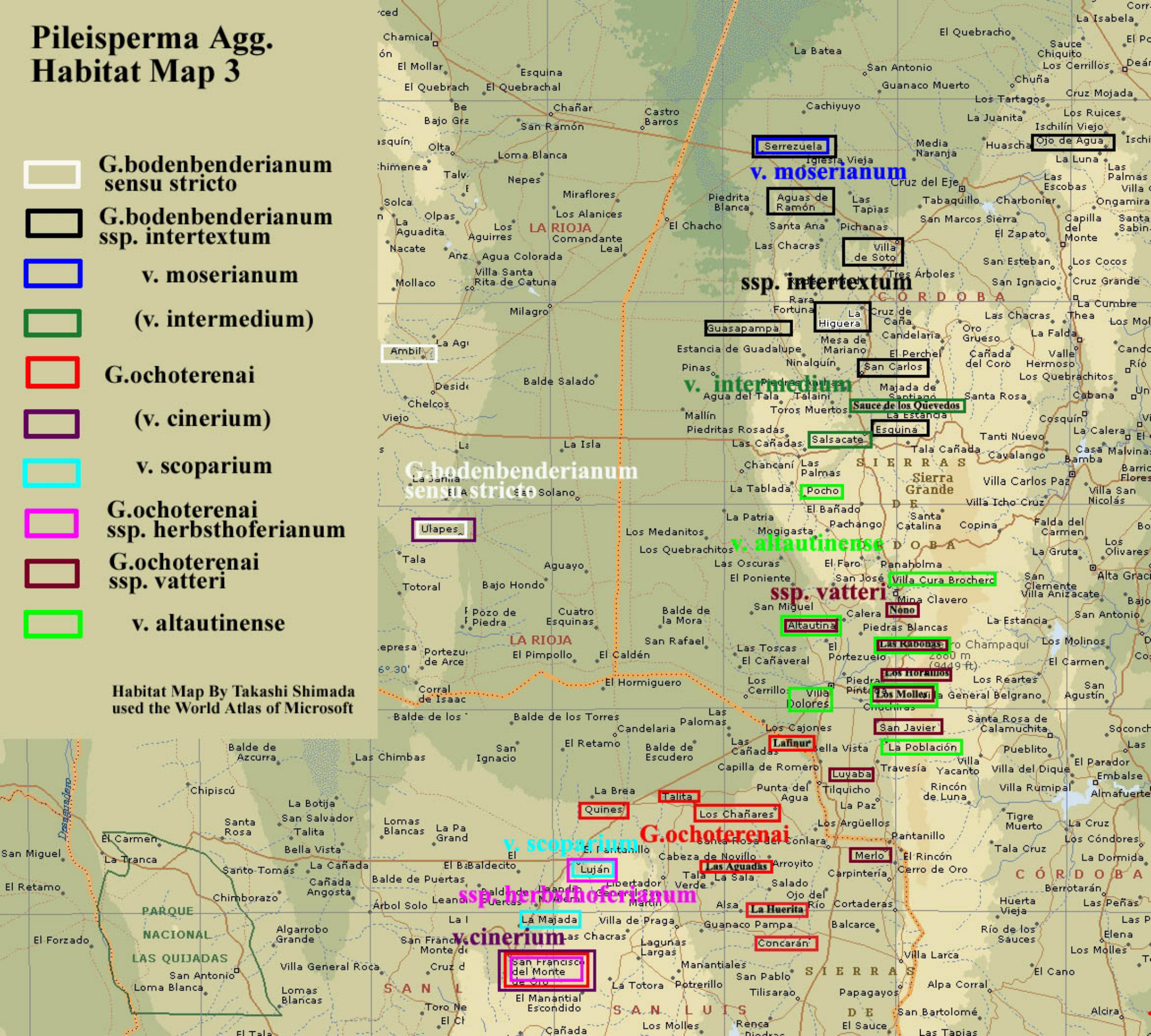




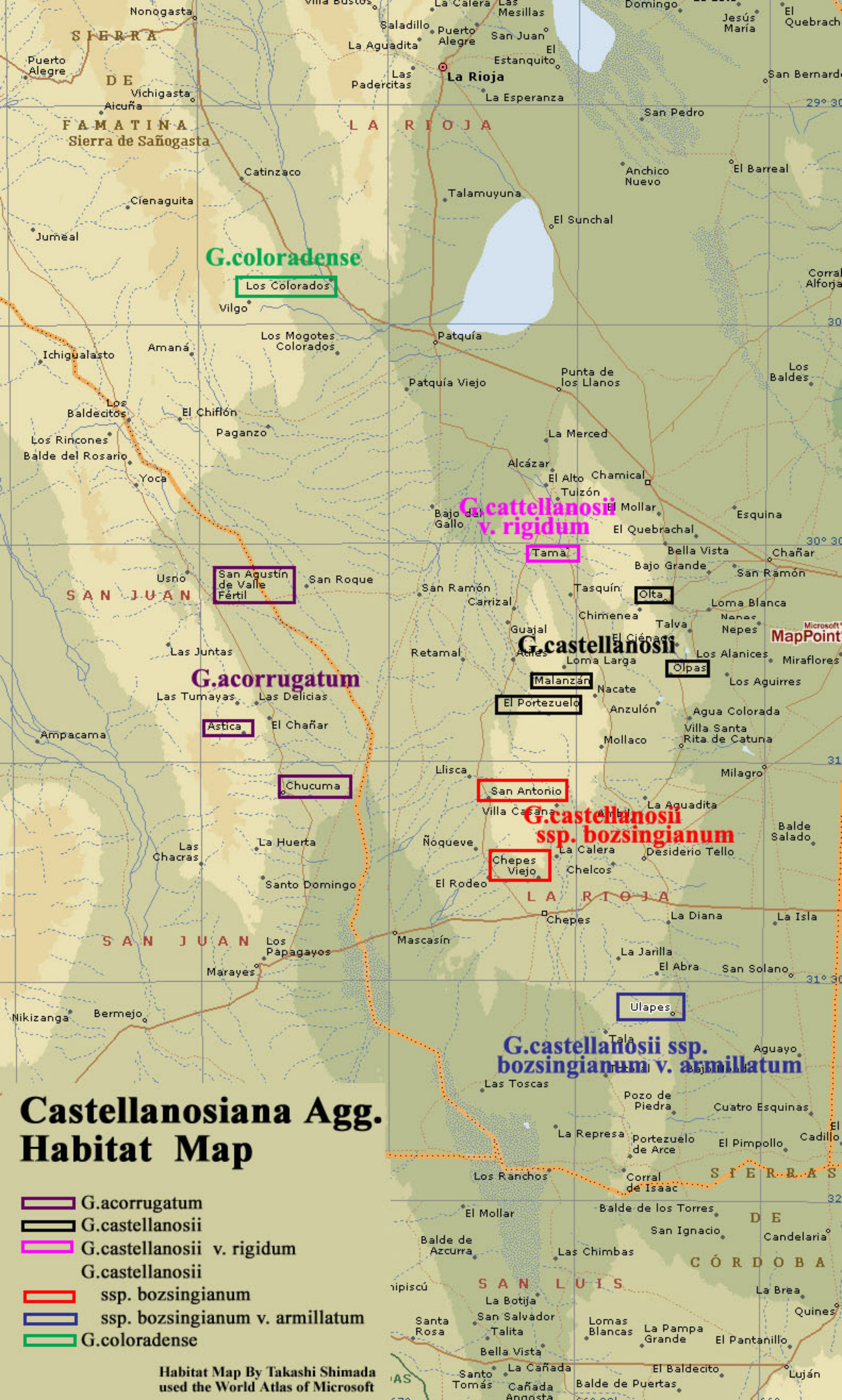
## Pileisperma Agg. Habitat Map 3

|                                                                                    |                                                |
|------------------------------------------------------------------------------------|------------------------------------------------|
|    | <b>G.bodenbenderianum<br/>sensu stricto</b>    |
|    | <b>G.bodenbenderianum<br/>ssp. intertextum</b> |
|    | <b>v. moserianum</b>                           |
|    | <b>(v. intermedium)</b>                        |
|    | <b>G.ochoterenai</b>                           |
|    | <b>(v. cinerium)</b>                           |
|    | <b>v. scoparium</b>                            |
|   | <b>G.ochoterenai<br/>ssp. herbsthoferianum</b> |
|  | <b>G.ochoterenai<br/>ssp. vatterii</b>         |
|  | <b>v. altautinense</b>                         |

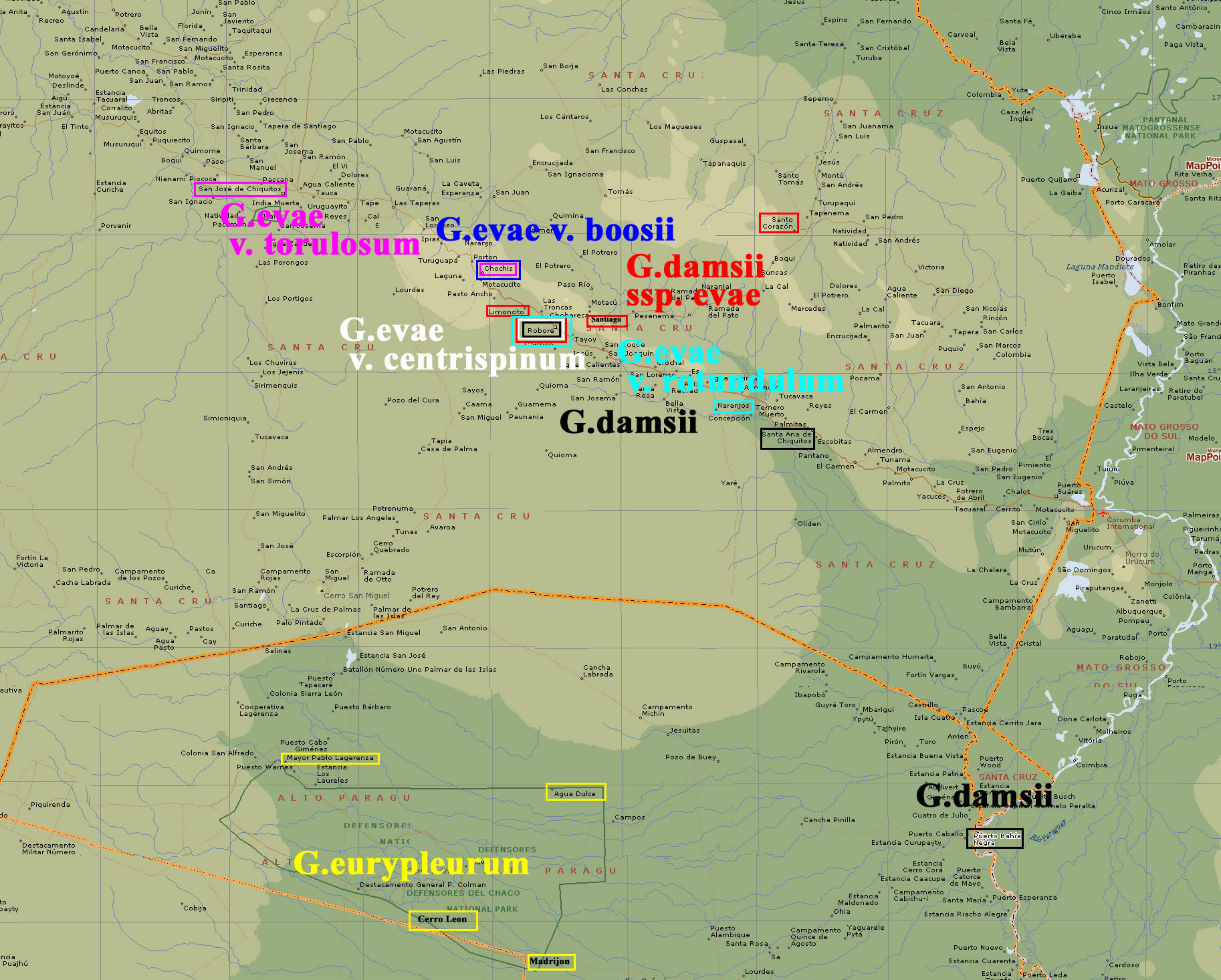
**Habitat Map By Takashi Shimada**  
used the World Atlas of Microsoft











# Terminalia Agg. Habitat Map 1

Habitat Map By Takashi Shimada used the World Atlas of Microsoft



**G.damsii**



**ssp. evae**



**v. boosii**



**v. centrispinum**



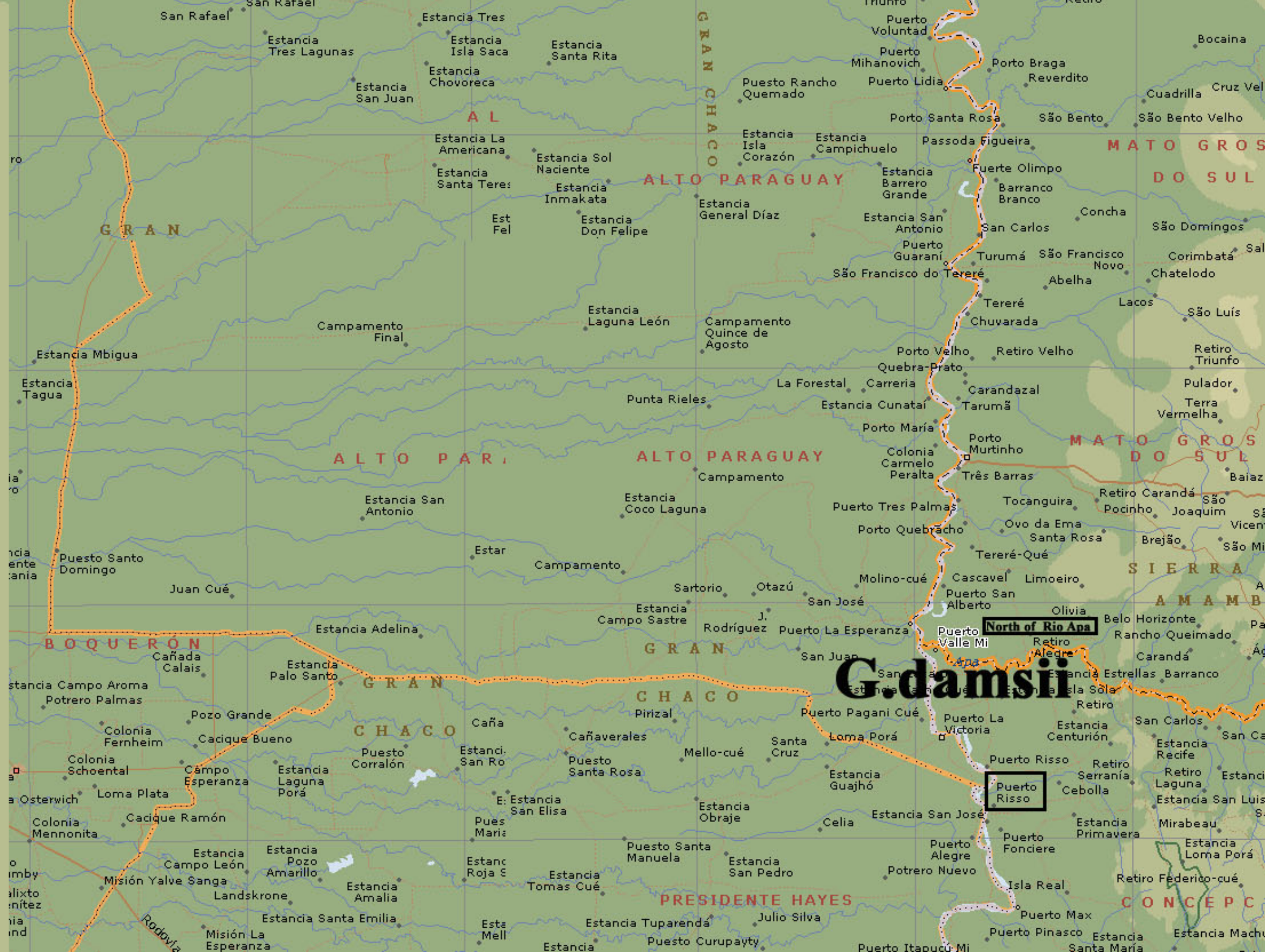
**v. torulosum**



**v. rotundulum**



**G.euryleurum**

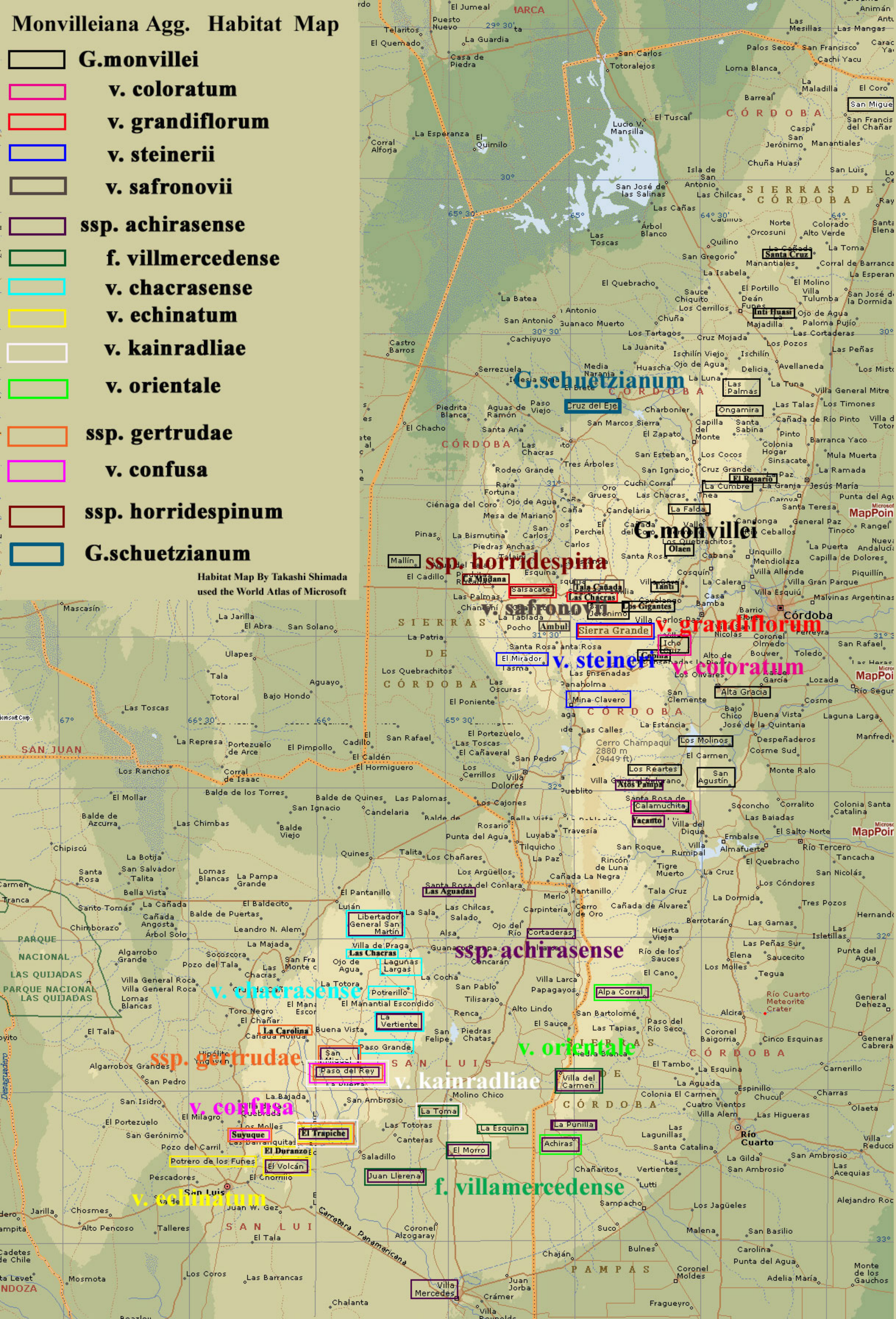




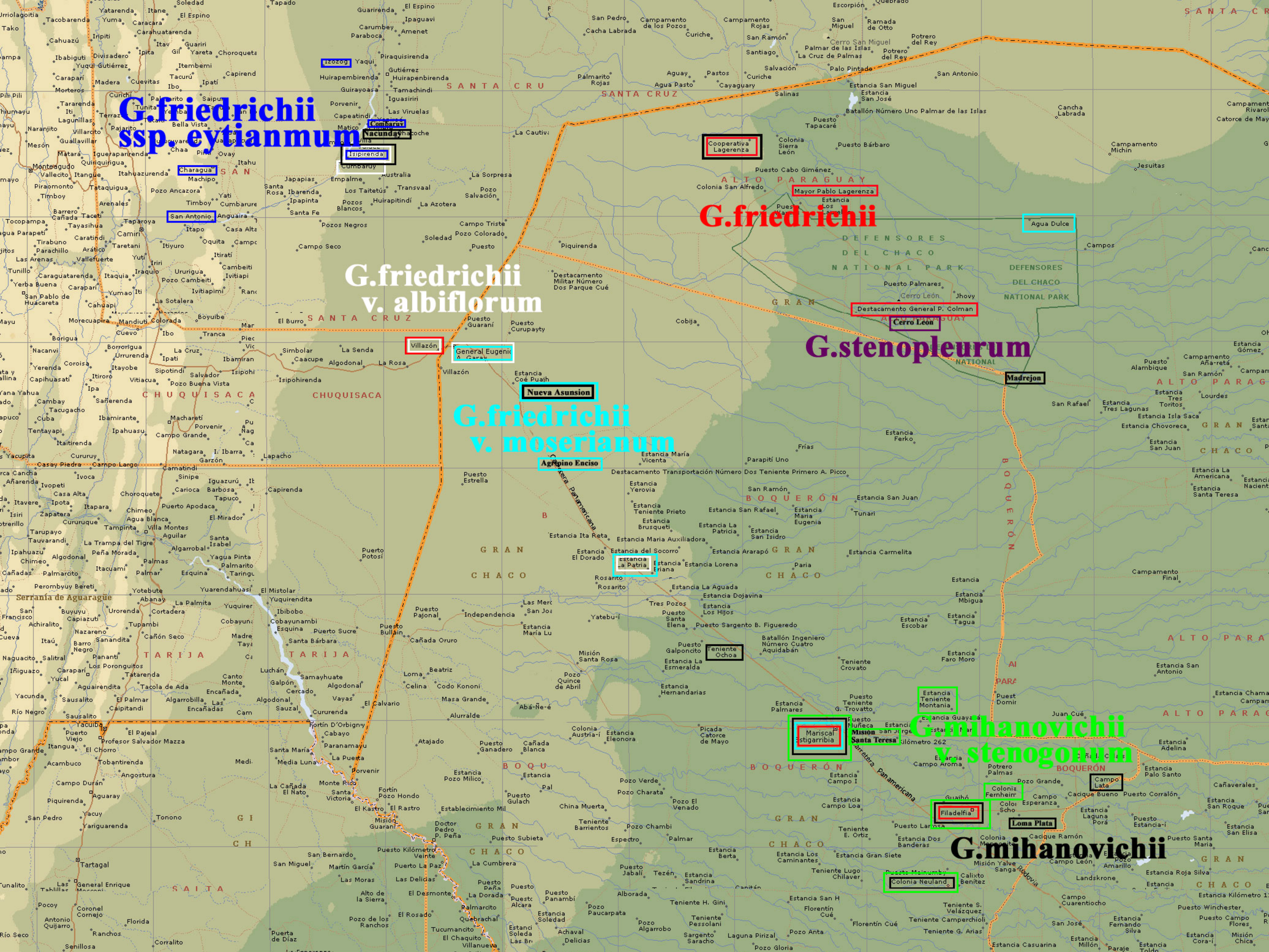
Monvilleiana Agg. Habitat Map

- G.monvillei
- v. coloratum
- v. grandiflorum
- v. steinerii
- v. safronovii
- ssp. achirasense
- f. villmercedense
- v. chacrasense
- v. echinatum
- v. kainradliae
- v. orientale
- ssp. gertrudae
- v. confusa
- ssp. horridespinum
- G.schuetzianum

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft







# Terminalia Agg. Habitat Map 2



**G.mihanovichii**



**v. stenogonum**  
(Syn. v. filadelfiense  
v. chloristictum )



**G.friedrichii**



**v. albiflorum**



**v. moserianum**

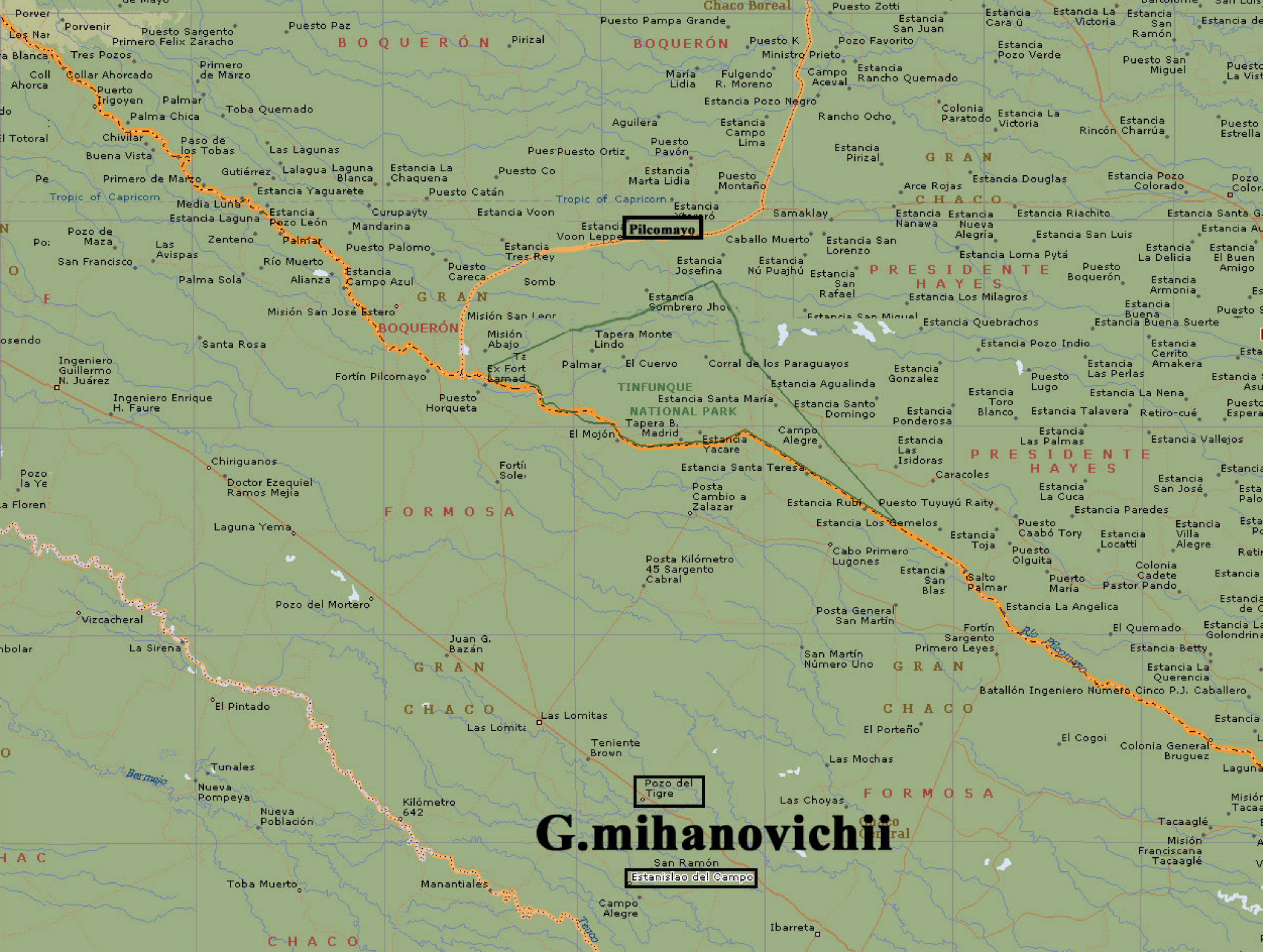


**ssp. eytianum**  
(Syn. G.eytianum)



**G.stenopleurum**

Habitat Map By Takashi Shimada  
used the World Atlas of Microsoft





# Schickendantziana Agg. Habitat Map

-  **G.schickendantzii**
-  **v. pectinatum**  
(ssp. pectinatum)
-  **ssp. bergeri**  
(Syn. G.michoga p.p.)
-  **ssp. periferarium**
-  **G.delaetii**
-  **f. anthersacos**
-  **G.marsoneri**  
(delaetii ssp. marsoneri)
-  **G.hamatum**
-  **G.itatiquense**  
(Syn. G.eytianum p.p.)

Habitat Map by Takashi Shimada  
Used the World Atlas of Microsoft





# Periferalia Agg. Habitat Map

Habitat Map By Takashi Shimadaused the World Atlas of Microsoft

- G.anisitsii
- v. griseopallidum
- v. pseudo-malacocarpus
- ssp. holdii
- v. tucavocense
- ssp. volkeri
- G.megatae
- G.megatae(G.onychacanthum)
- G.megatae(G.tudae)
- ssp. matoense

## Terminalia , Schikendantzii Agg.

- G.friedrichii ssp. eytianum  
(Syn. G.eytianum p.p.)
- G.itatiquense  
(Syn. G.eytianum p.p.)

